NUEXCO

Monthly Report

August 1991 Number 276

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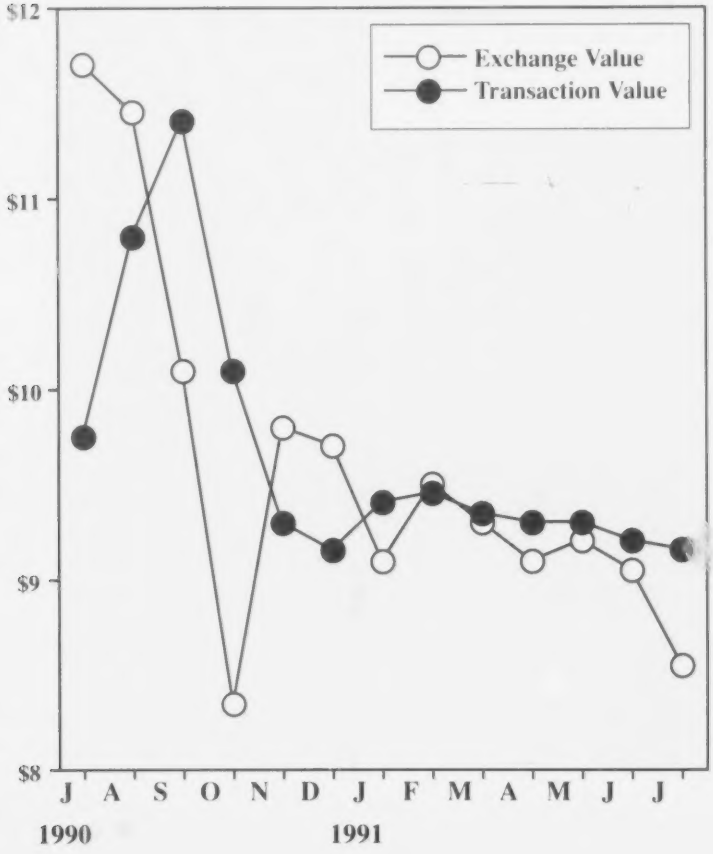

NUEXCO

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ISSN 0742-4582

NUEXCO Monthly Report

August 1991
No. 276

Published by:
NUEXCO
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To Our Readers

NUEXCO is pleased to announce it has nominated Dr. R. Gene Clark as Executive Vice President of Global Nuclear Services and Supply, Ltd. (GNSS). GNSS is the company jointly formed by NUEXCO and Techsnabexport (TENEX) to market Soviet nuclear fuel products and services to utilities, principally in the United States and the Far East, although generally operating worldwide. Gene has been a Commercial Representative for NUEXCO in Hong Kong for the past two years, and prior to that assignment was President of NUEXCO Information Systems in Denver. Gene and his wife will be relocating to Washington D.C. by mid-September.

TENEX has announced that it has nominated Mr. Alexander (Sasha) Chernov as President of GNSS, and that it also has assigned Mr. Paul Kroupnik to the GNSS venture. Mr. Chernov is currently Deputy General Director of TENEX and Mr. Kroupnik is presently Deputy Director of Uranservis. Mr. Chernov and Mr. Kroupnik and their families are expected to relocate to Washington D.C. by the end of October.

In addition, Mr. Ron Witzel, of NUEXCO's San Francisco office, will be devoting a significant portion of his time working with GNSS. Ron will continue to be involved with other nuclear fuel business activities for NUEXCO, and thus, will be splitting his time between the San Francisco office and the GNSS office in Washington D.C.

We congratulate Gene, Sasha, Paul, and Ron on their new responsibilities.

* * *

Readers will also note that a subject index of material from the NUEXCO Monthly Reports of January 1990 through June 1991 is included as an insert in this month's Report. A more comprehensive index covering topics back through 1978 will be released early in 1992.

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In Memoriam

It is with deep sorrow that we must announce the death of T. J. (Tom) Barendregt, a member of CONCORD's International Advisory Committee (IAC). Tom died on Monday, July 15 of a heart attack.

Tom was the IAC's representative from The Netherlands. He was a well-known consultant on business affairs of Europe and South America, and an expert in the nuclear industry. His experience included consulting work for NUCLEBRAS of Brazil, and president of NUCON B.V., a nuclear engineering contractor from The Netherlands. Tom was formerly an executive director of EUROCHEMIC, a reprocessing company in Mol, Belgium, and he had also been a managing director for Comprimo, a petroleum and nuclear engineering firm.

Tom was 71. We join his wife Claire, his two sons, Herman and Peter, his three grandchildren, and his many friends and colleagues in mourning his death.

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Market Values Summary

NUEXCO Market Values	This Report July 31, 1991	Last Report June 30, 1991	12 Months Ago July 31, 1990
EXCHANGE VALUE[1]	**$8.55** /lb equivalent U_3O_8	$9.05	$11.70
UF_6 VALUE[2]	**$25.75** /kg U as UF_6	$27.25	$32.50
LOAN RATE[3]	**3.5%** /annum	3.5%	3.5%
CONVERSION VALUE[4]	**$1.50** /lb U as UF_6	$1.50	$1.45
SWU VALUE[5] **(0.3 % tails assay)**	**$66** /SWU	$59	$50
TRANSACTION VALUE[6]	**$9.15** /lb equivalent U_3O_8	$9.20	$9.75
Transactions	**21**	24	35
Months	**3**	3	3
Millions of Pounds	**4.1**	6.3	9.1

DEFINITIONS

1 The **Exchange Value** is NUEXCO's judgment of the price at which transactions for significant quantities of natural uranium concentrates could be concluded as of the date indicated.

2 The **UF_6 Value** is NUEXCO's judgment of the price at which spot and near-term transactions for significant quantities of natural uranium hexafluoride could be concluded as of the date indicated.

3 The **Loan Value** is NUEXCO's judgment of the annual interest rate at which uranium loans could be concluded as of the date indicated.

4 The **Conversion Value** is NUEXCO's judgment of the price at which spot and near-term transactions for significant quantities of conversion services could be concluded in the secondary market as of the date indicated.

5 The **SWU Value** is NUEXCO's judgment of the price at which spot and near-term transactions for significant quantities of enrichment services could be concluded as of the date indicated.

6 The **Transaction Value** is a weighted average price of recent natural uranium sales transactions. The calculation is based on prices paid in:

a) Transactions closed within the previous three month period for which delivery is scheduled within one year of the transaction date;

b) At least ten transactions;

c) Transactions involving a sum total of at least 2 million pounds equivalent U_3O_8.

DERIVATIONS AND COMMENTS

- All **Market Values** are expressed in terms of US$.
- All **Market Values** are based on:
  - Data from recently completed transactions.
  - Data from pending transactions.
  - Firm bids to buy or borrow, and firm offers to sell or lend.
  - Prices purchasers or rates borrowers have expressed a willingness to pay, but for which NUEXCO is not aware of firm bids to buy or borrow and prices sellers or rates lenders have expressed a willingness to accept, but for which NUEXCO is not aware of firm offers to sell or lend.
- Prices associated with deliveries under old or renegotiated contracts or other than arm's-length transactions are not included in the determination of these **Market Values**.
- In the determination of prices, NUEXCO does not consider charges for transportation other than that customarily provided by suppliers.
- The prices of services or materials delivered under long-term contracts with primary suppliers are not considered in the determination of the listed values.
- For the **SWU Value**, NUEXCO converts SWU prices at varying tails and product assays to equivalent SWU prices at a tails assay of 0.30 weight percent U^{235} and a product assay of 3.0 weight-percent U^{235}, assuming feed costs corresponding to the NUEXCO **Exchange Value** and **Conversion Value** determined as of the same date.
- In calculating the **Transaction Value**, NUEXCO does not account for the price of uranium delivered in connection with contracts which call for "market price" mechanisms. This exclusion applies particularly to contracts in which delivery prices are expressed as a function of future **Exchange Values** or any other indeterminate variable. Also excluded from the calculation are any other transactions in which the delivery price is defined in such a way that it can not currently be determined.
- The sample time for the **Transaction Value** is extended as necessary to satisfy the minima for the number of transactions and quantity of material. Other currencies are converted to US dollars using conversion rates in effect on or near the transaction date.

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MARKET REVIEW

JULY MARKET REVIEW

(as of July 31, 1991)

OVERVIEW

Uranium prices continued to decline during July, while enrichment prices continued their dramatic upturn. The July 31 Exchange Value fell to $8.55 per pound U_3O_8—a $0.50 decrease. Similarly, the UF_6 Value also dropped, decreasing $1.50, to $25.75 per kgU as UF_6. Abundant supply and lack of near-term demand led to the price declines. Six near-term uranium sales totalling only 1.4 million pounds equivalent U_3O_8 were reported in July (**Table 1**). This is considerably below 1991's monthly average through July of nine sales and 2.1 million pounds. Of July's six sales, four involved concentrates, one involved natural UF_6, and one involved enriched uranium product (EUP).

The Loan Rate and Conversion Value both remained unchanged at 3.5 percent per annum and $1.50 per pound U as UF_6, respectively. Two loans totalling over four million pounds equivalent U_3O_8 were reported. No conversion sales were reported.

The enrichment market remained the center of attention as increasing demand and limited supply led to a record $7 increase in the SWU Value, to $66 per SWU. Three near-term enrichment sales totalling nearly 100 thousand SWU, and four long-term SWU sales totalling over 1.5 million SWU were reported.

Table 1
NEAR-TERM URANIUM SALES SUMMARY

	July 1991		Year-to-Date	
	No. of Sales	Volume[1]	No. of Sales	Volume[1]
Concentrates	4	0.9	41	8.8
Natural UF_6	1	0.3	14	4.6
EUP	1	0.2	8	1.5
Total[2]	**6**	**1.4**	**63**	**14.9**

[1] Million pounds equivalent U_3O_8
[2] Due to independent rounding, columns may not equal total.

URANIUM AND CONVERSION

Uranium prices broke sharply lower during July: the **Exchange Value** fell $0.50 (5.5%), to **$8.55** per pound U_3O_8. With the exception of the record low of $8.35 last October 31, the current Exchange Value is at its lowest level since the early 1970s. A number of aggressive sellers combined with limited demand forced prices lower. Last fall, the record low prices led many discretionary buyers to enter the market and most sellers to exit the market. Through July of this year however, the falling prices had not yet generated that market response. But by early August, it was clear that a threshold had been reached and numerous discretionary buyers entered the market.

Four spot concentrates sales were reported in July totalling 900 thousand pounds equivalent U_3O_8. Utilities made all four purchases from intermediaries and producers, and all called for delivery before the end of this year.

* * *

Following the concentrates market, the **UF_6 Value** also fell 5.5 percent, declining $1.50, to **$25.75** per kgU as UF_6. Low-priced concentrates combined with market-price conversion yielded lower UF_6 prices, and contributed to the downward pressure on the UF_6 market. In addition, newly aggressive UF_6 sellers have emerged in the past few weeks.

Only one natural UF_6 transaction was reported in July. A US utility purchased approximately 300 thousand pounds equivalent U_3O_8 after evaluating several competitive offers. One other near-term transaction was reported in which a US utility purchased over 200 thousand pounds equivalent U_3O_8 contained in EUP from an intermediary.

* * *

In the long-term uranium market, three sales were reported in July, but all had occurred earlier in the year. A total of 2.7 million pounds equivalent U_3O_8 will be delivered during the period 1995 through 2001, with almost one million pounds of the total contained in EUP.

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The **Transaction Value** dipped $0.05, to **$9.15** per pound U_3O_8 based on 21 transactions over 3 months involving 4.1 million pounds equivalent U_3O_8. Although prices were down sharply, the relatively low volume of July sales served to limit the decrease in the Transaction Value.

* * *

Active uranium supply dropped to **6.0** million pounds equivalent U_3O_8, but remains significantly larger than **active uranium demand**, which declined to only **850** thousand pounds equivalent U_3O_8. The **supply/demand ratio** increased to **7.1**.

* * *

The **Loan Rate** remained unchanged at **3.5** percent per annum. Two loans totalling nearly four million pounds equivalent U_3O_8 were reported. A utility and a producer borrowed the material at levels near the July 31 Loan Rate. Loan supply increased to 5.5 million pounds equivalent U_3O_8 (**Table 2**), while loan demand remained at zero.

* * *

The **Conversion Value** remained **$1.50** per pound U as UF_6 for the third consecutive month. No near-term transactions were reported, although two utilities are in final negotiations with their selected long-term suppliers.

* * *

ENRICHMENT SERVICES AND ENRICHED URANIUM PRODUCT

In an active market, the **SWU Value** rose seven dollars (11.9%), to **$66** per SWU. This is the largest change, both in absolute and percentage terms, in the history of the NUEXCO SWU Value (first published on January 31, 1986). Increasing demand and limited supply led to the record increase. On the supply side of the market, some enriched inventories that have been overhanging the market for the last couple of years have apparently been withdrawn or sold. The current price rise has increased utility interest in the enrichment market, and may lead to some acceleration of purchasing activity.

Three near-term enrichment sales were reported, in which US utilities purchased almost 100 thousand SWU. One of the sales involved SWU contained in EUP. In addition, two utilities were evaluating near-term offers at month end, and several more buyers were expected to request near-term offers over the next month.

The long-term SWU market showed an increased level of activity as well. Four long-term sales were reported, totalling over 1.4 million SWU for delivery during the period 1992 through 2001. One of the sales involved SWU contained within EUP and was concluded earlier this year, while another sale occurred in July but was inadvertently left out of the totals reported in NUEXCO's July 31 Market Activity Summary. The high level of activity in the market is expected to continue as at least 12 utilities were evaluating long-term offers at the end of July.

Table 2
NEAR-TERM SUPPLY/DEMAND SUMMARY

	Active Supply[1]	Active Demand[1]
• Uranium (thousand lbs equivalent U_3O_8)	6,030	850
• Supply/Demand Ratio:	7.1	
• Loan (thousand lbs equivalent U_3O_8)	5,470	0
• Conversion (thousand lbs U as UF_6)	700	1,020
• SWU (thousand SWUs)	400	470

[1] Supply and Demand tables in the Market Review section of this Report provide details for each category.

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MARKET REVIEW

Euratom Supply Agency Annual Report 1990

In other market news, the Euratom Supply Agency recently released its 1990 Annual Report summarizing the status of the nuclear fuel cycle industry within the European Community (EC). Nuclear power provides approximately 35 percent of the EC's annual electricity production, with half of the EC's twelve Member States using some nuclear-generated electricity.

Euratom reports that most of the natural uranium contracts signed during 1990 concerned spot-market transactions, although some long-term contracts were concluded. These long-term contracts typically provided buyers with favorable pricing terms and excellent flexibility on delivery quantities. For spot-market contracts, prices were frequently low, although volatile, ranging from US$8.55 to $13.35 per pound U_3O_8 during the year. For the year, 1990 deliveries of natural uranium to EC entities totalled more than 33 million pounds equivalent U_3O_8, of which nearly 17 percent was delivered under spot or near-term contracts. The average price of uranium delivered under medium- and long-term contracts during 1990 dropped to $29.39 per pound U_3O_8, while the average price for spot contract deliveries was $9.68 per pound. Comparable historical average price figures are given in the back of this Report in the table entitled *Volume and Price of Uranium Deliveries to the European Community*.

In the enrichment market, most EC transactions were spot purchases concluded near $50 per SWU. The Euratom Report also states that "although the potential availability of substantial quantities of low priced separative work from the USSR continued to be widely publicized, purchases from this source during 1990 by Community entities were negligible." In all, deliveries to EC utilities totalled approximately 1,700 tonnes of low-enriched uranium. About 85 percent of this material was enriched by Eurodif or Urenco, with the balance supplied by the US DOE or TENEX.

Table 3
ENRICHMENT PRICES
(July 31, 1991)

Prices	This Month Report 276	Last Month Report 275	12 Months Ago Report 264
NUEXCO SWU Value ($US per SWU)	66	59	50
US DOE SWU prices: ($US per SWU)			
USEC	117.85[1]	117.85[1]	117.85[1]
AFC	153.00[2]	153.00[2]	153.00[2]
Requirements	157.00[2]	157.00[2]	157.00[2]
Incentive Price (IP2)[3]	100.68[3]	100.68[3]	90.00[4]
Calculated worth of enriched UF_6[5]: ($US per KgU as UF_6)			
2.0 w/o U^{235}	218	212	225
2.5 w/o U^{235}	305	294	308
3.0 w/o U^{235}	395	379	393
3.5 w/o U^{235}	486	466	480
4.0 w/o U^{235}	579	554	568
4.5 w/o U^{235}	673	643	657

[1] Effective 10/1/89 to 9/30/91.
[2] Effective since 10/1/84.
[3] IP2: Effective 10/1/90 to 9/30/91, for up to 30% of annual requirements.
[4] Used Incentive Price IP1 – effective 10/1/86 to 9/30/90, for up to 30% of annual requirements.
[5] Calculated using the NUEXCO Exchange Value, Conversion Value, SWU Value and 0.30 w/o U^{235} tails assay.

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RECENT TRANSACTIONS

Uranium Sales[1]

NUEXCO Transaction Number	Delivery Period	Approximate Quantity (thousand pounds equivalent U_3O_8)	Price Within Percentage Range[2] of Current Exchange or UF_6 Value	Buyer	Seller	Remarks
5157	1991	101-300	R	Utility	Producer	
5158	1991	301-600	103-110	Utility	Intermediary	
5161A	1992	101-300	See Remarks	Utility	Intermediary	Contained in EUP
5162	1991	101-300	103-110	Utility	Intermediary	
5166	1991	50-100	98-102	Utility	Intermediary	
5167	1991	301-600	98-102	Utility	Intermediary	UF_6
5168A	1996-2001	601-1,000	See Remarks	R	Intermediary	Contained in EUP; Occurred earlier in 1991
5169	1995-2000	601-1,000	See Remarks	R	Producer	Occurred earlier in 1991
5170	1995-2000	601-1,000	See Remarks	R	Producer	Occurred earlier in 1991

R means that NUEXCO either does not know, or that NUEXCO has restricted that information to protect client or source confidentiality.

[1] Transactions listed are not limited to those in which NUEXCO was involved, but also include others of which NUEXCO is aware. NUEXCO may delay reporting some transactions in order to protect proprietary information.

[2] The ranges *Below 90*, *90-97*, *98-102*, *103-110*, *Above 110*, represent percentages (rounded to whole numbers) of the appropriate current Exchange Value or UF_6 Value. The endpoints of each range are included within that range.

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RECENT TRANSACTIONS

Natural Uranium Loans [1]

NUEXCO Transaction Number	Delivery Period	Approximate Quantity (thousand pounds equivalent U_3O_8)	Price Within Percentage Range [2] of Current Loan Rate	Borrower	Lender	Remarks
5174	1991	601-1,000	98-102	Producer	Utility	UF_6
5176	1991	1,001-3,000	98-102	Utility	Utility	

Conversion Sales [1]

NUEXCO Transaction Number	Delivery Period	Approximate Quantity (thousand pounds of U equivalent)	Price Within Percentage Range [2] of Current Conversion Value	Buyer	Seller	Remarks
No Conversion Sales are reported						

Enrichment Sales [1]

NUEXCO Transaction Number	Delivery Period	Approximate Quantity [3] (thousand SWU)	Price Within Percentage Range [2] of Current SWU Value [4]	Buyer	Seller	Remarks
5153	1996-1998	301-600	R	Utility	R	
5160	1996-1998	101-300	R	Utility	R	
5161B	1992	Less than 50	See Remarks	Utility	Intermediary	Contained in EUP
5168B	1996-2001	601-1,000	See Remarks	R	Intermediary	Contained in EUP; Occurred earlier in 1991
5171	1991	Less than 50	90-97	Utility	Intermediary	
5173	1992	Less than 50	98-102	Utility	Intermediary	
5179	1992-1994	100-300	R	Utility	Intermediary	

R means that NUEXCO either does not know, or that NUEXCO has restricted that information to protect client or source confidentiality.

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[2] The ranges *Below 90, 90-97, 98-102, 103-110, Above 110*, represent percentages (rounded to whole numbers) of the appropriate current Market Value. The endpoints of each range are included within that range.

[3] If tails assay is unknown or unspecified, NUEXCO's calculation of SWU quantity assumes 0.30 w/o tails assay.

[4] Prices are usually normalized to 0.30 w/o tails assay. When prices and SWU values are expressed as discounts from a reference price (e.g., X dollars less than DOE's USEC base price at time of delivery), the percentage price range is based on the discounted prices, not on the reference price.

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SUPPLY AND DEMAND

Uranium Supply

NUEXCO Project Number	Quantity (Thousand Pounds equivalent U_3O_8) Spot or Near-term [1]	Intermediate or Long-term [2]	Delivery Period	Remarks
AVAILABLE FOR SALE:				
ACTIVE				
89-1054A*	500	—	1991 on	UF_6e
90-1227	500	—	1991	
90-1231	500	500 per year	1991-1995	
91-1060	100	—	1991	
91-1157	100	—	1991	
91-1502	500	—	1991	
91-1503A	1,330	2,670	1991-1993	UF_6e
91-1505*	1,500	—	1991	
91-1506*	500	—	1991	
91-1507*	500	—	1991	
TOTAL	**6,030**			
INACTIVE	**5,530**			
AVAILABLE TO LOAN:				
ACTIVE				
91-1084	3,900	—	—	U_3O_8
91-1132	100	—	—	U_3O_8
91-1146	140	—	—	UF_6
91-1151	390	—	—	U_3O_8
91-1175*	340	—	—	U_3O_8
91-1181*	600	—	—	U_3O_8
TOTAL	**5,470**			
INACTIVE	**655**			

* New or revised since last month.

[1] For delivery within one year, measured from the date of this Report. This category excludes material deliverable within one year under other than spot or near-term contracts.

[2] For delivery beyond one year, measured from the date of this Report.

Active Projects reclassified as Inactive since last month: *none*
Active Projects removed since last month: 90-1078A, 90-1501, 91-1145, 91-1508

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MARKET REVIEW

SUPPLY AND DEMAND

Uranium Demand

NUEXCO Project Number	Quantity (Thousand Pounds equivalent U_3O_8) Spot or Near-term [1]	Intermediate or Long-term [2]	Delivery Period	Remarks
INQUIRIES TO PURCHASE:				
ACTIVE				
91-1010A	85	—	1991	UF_6e
91-1165*	325	—	1991	
91-1182*	75	—	1991-1992	
91-1183*	25	—	1991	
91-1186*	340	—	1991	
90-1291	—	100 per year	1991-1995	
91-1064	—	460 per year	1993-1997	U_3O_8/UF_6
91-1118	—	300 per year	1993-1998	U_3O_8/UF_6
91-1184*	—	350 per year	1993-1997	
91-1141	—	500	1994	
TOTAL	**850**			
INACTIVE	**1,405**			
INQUIRIES TO BORROW:	*No inquiries to borrow are reported*			

*New or revised since last month.

[1] For delivery within one year, measured from the date of this Report. This category excludes material deliverable within one year under other than spot or near-term contracts.

[2] For delivery beyond one year, measured from the date of this Report.

Active Projects reclassified as Inactive since last month: 90-1304, 91-1112, 91-1158
Active Projects removed since last month: 90-1224A, 91-1014A, 91-1017, 91-1094A, 91-1102, 91-1106, 91-1108, 91-1110, 91-1127A, 91-1138

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SUPPLY AND DEMAND

Conversion Supply And Demand

NUEXCO Project Number	Quantity (Thousand Pounds U as UF_6) Within 3 Years [1]	Beyond 3 Years [1]	Delivery Period	Remarks
AVAILABLE FOR SALE:				
ACTIVE				
91-1500	300	—	1991	
91-1501	400	—	1991	
TOTAL	**700**			
INACTIVE	*None reported*			
INQUIRIES TO PURCHASE:				
ACTIVE				
91-1174*	660	—	1991-1992	
91-1185*	360	—	1991	
91-1170*	—	1,100	1992-1996	
TOTAL	**1,020**			
INACTIVE	*None reported*			

* New or revised since last month.

[1] Measured from the date of this Report.

Active Projects reclassified as Inactive since last month: *none*
Active Projects removed since last month: 91-1103

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SUPPLY AND DEMAND

SWU Supply And Demand

NUEXCO Project Number	Quantity (Thousand SWUs) Spot or Near-term [1]	Intermediate or Long-term [2]	Delivery Period	Remarks
AVAILABLE FOR SALE:				
ACTIVE				
89-1054B*	100	—	1991 on	UF6e
91-1508*	100	—	1991	
91-1509*	200	—	1992	
90-1500	—	1,000 per year	1991 on	
TOTAL	**400**			
INACTIVE	**1,235**			
INQUIRIES TO PURCHASE:				
ACTIVE				
91-1010B	20	—	1991	UF6e
91-1150	150	—	1991	
91-1156*	300	—	1992	
90-1196	—	60 per year	1995 on	
90-1301	—	1,000 per year	1995-2000	UF6e
91-1027	—	55 per year	1996-2000	
91-1063	—	15 per year	1995-1998	
91-1094B	—	385 per year	1994-1995	UF6e
91-1105*	—	40 per year	1996-2001	
91-1142	—	75 per year	1995-2000	
91-1131	—	3,660	1995-2001	
91-1136	—	120	1996-2000	
90-1144	—	240	1995-2000	
90-1224B*	—	1,670	1995-2001	UF6e
91-1014B	—	1,770	1992-2001	UF6e
91-1066	—	320	1995-2000	
91-1152	—	2,700	1995-2001	
91-1154	—	285	1996-2001	
91-1155*	—	450	1996-1999	
91-1160*	—	980	1992-1997	
91-1171*	—	560	1995-1998	
91-1179*	—	245	1992-1994	
TOTAL	**470**			
INACTIVE	**245**			

* New or revised since last month.

[1] For delivery within one year, measured from the date of this Report. This category excludes SWU deliverable within one year under other than spot or near-term contracts.

[2] For delivery beyond one year, measured from the date of this Report.

Active Projects reclassified as Inactive since last month: 91-1128

Active Projects removed since last month: 90-1078B, 90-1181, 91-1008, 91-1032, 91-1083, 91-1109, 91-1113, 91-1120, 91-1121, 91-1127B

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MARKET VALUES EXPRESSED IN SELECTED CURRENCIES

Exchange Value[1]

Country (currency)	per lb equivalent U_3O_8 as Concentrates			per kg U as Concentrates		
	This Month (July 31, 1991)	Last Month (June 30, 1991)	12 Months Ago (July 31, 1990)	This Month (July 31, 1991)	Last Month (June 30, 1991)	12 Months Ago (July 31, 1990)
Australia (dollar)	10.98	11.81	14.78	28.53	30.70	38.42
Belgium (franc)	307.00	337.31	386.27	798.14	876.93	1,004
Canada (dollar)	9.84	10.33	13.48	25.58	26.87	35.06
EC (ecu)	7.28	7.98	9.11	18.92	20.75	23.68
Finland (markka)	35.89	38.81	44.06	93.30	100.90	114.54
France (franc)	50.68	55.55	62.83	131.75	144.41	163.34
Germany (mark)	14.90	16.39	19.46	38.75	42.62	50.59
Italy (lira)	11,124	12,182	13,747	28,920	31,670	35,739
Japan (yen)	1,175	1,246	1,732	3,054	3,239	4,502
Netherlands (guilder)	16.80	18.47	21.18	43.69	48.02	55.05
So. Africa (comm. rand)	24.49	26.13	30.41	63.67	67.92	79.07
So. Korea (won)	6,255	6,555	8,371	16,263	17,042	21,764
Spain (peseta)	933.20	1,028	1,154	2,426	2,672	3,001
Sweden (krona)	54.08	59.19	68.50	140.60	153.88	178.09
Switzerland (franc)	13.02	14.06	15.91	33.85	36.55	41.35
Taiwan (dollar)	227.51	242.81	313.56	591.49	631.25	815.20
UK (pound)	5.07	5.57	6.33	13.18	14.49	16.46
US (dollar)	8.55	9.05	11.70	22.23	23.53	30.43

Transaction Value[1]

Country (currency)	per lb equivalent U_3O_8 as Concentrates			per kg U as Concentrates		
	This Month (July 31, 1991)	Last Month (June 30, 1991)	12 Months Ago (July 31, 1990)	This Month (July 31, 1991)	Last Month (June 30, 1991)	12 Months Ago (July 31, 1990)
Australia (dollar)	11.75	12.00	12.32	30.54	31.20	32.02
Belgium (franc)	328.55	342.90	321.89	854.15	891.46	836.84
Canada (dollar)	10.53	10.51	11.24	27.38	27.31	29.21
EC (ecu)	7.79	8.12	7.59	20.24	21.10	19.73
Finland (markka)	38.41	39.45	36.71	99.85	102.57	95.45
France (franc)	54.23	56.47	52.36	140.99	146.80	136.12
Germany (mark)	15.95	16.67	16.21	41.46	43.33	42.16
Italy (lira)	11,905	12,384	11,456	30,950	32,195	29,782
Japan (yen)	1,257	1,266	1,443	3,268	3,292	3,751
Netherlands (guilder)	17.98	18.78	17.65	46.75	48.81	45.88
So. Africa (comm. rand)	26.21	26.56	25.34	68.14	69.05	65.89
So. Korea (won)	6,694	6,664	6,976	17,404	17,324	18,137
Spain (peseta)	998.69	1,045	961.82	2,596	2,716	2,501
Sweden (krona)	57.87	60.17	57.08	150.46	156.43	148.41
Switzerland (franc)	13.94	14.29	13.25	36.23	37.16	36.46
Taiwan (dollar)	243.48	246.83	261.30	633.00	641.71	679.33
UK (pound)	5.43	5.67	5.28	14.10	14.73	13.72
US (dollar)	9.15	9.20	9.75	23.79	23.92	25.35

[1] As of May 1991 Report #273; calculated using currency exchange rates for the last business day of the month, as published in *The Wall Street Journal*. Prior to May 1991 Report #273; calculated using currency exchange rates published in *The Wall Street Journal* on the last business day of the month.

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MARKET REVIEW

MARKET VALUES EXPRESSED IN SELECTED CURRENCIES

Conversion Value[1]

Country (currency)	per lb U as UF_6			per kg U as UF_6		
	This Month (July 31, 1991)	Last Month (June 30, 1991)	12 Months Ago (July 31, 1990)	This Month (July 31, 1991)	Last Month (June 30, 1991)	12 Months Ago (July 31, 1990)
Australia (dollar)	1.93	1.96	1.83	4.25	4.31	4.04
Belgium (franc)	53.86	55.91	47.87	118.74	123.26	105.54
Canada (dollar)	1.73	1.71	1.67	3.81	3.78	3.68
EC (ecu)	1.28	1.32	1.13	2.81	2.92	2.49
Finland (markka)	6.30	6.43	5.46	13.88	14.18	12.04
France (franc)	8.89	9.21	7.79	19.60	20.30	17.17
Germany (mark)	2.61	2.72	2.41	5.76	5.99	5.32
Italy (lira)	1,952	2,019	1,704	4,303	4,451	3,756
Japan (yen)	206.07	206.47	214.59	454.31	455.19	473.09
Netherlands (guilder)	2.95	3.06	2.62	6.50	6.75	5.79
So. Africa (comm. rand)	4.30	4.33	3.77	9.47	9.55	8.31
So. Korea (won)	1,097	1,086	1,037	2,419	2,395	2,287
Spain (peseta)	163.72	170.32	143.04	360.94	375.49	315.35
Sweden (krona)	9.49	9.81	8.49	20.92	21.63	18.72
Switzerland (franc)	2.28	2.33	1.97	5.04	5.14	4.35
Taiwan (dollar)	39.91	40.24	38.86	88.00	88.72	85.67
UK (pound)	0.89	0.92	0.78	1.96	2.04	1.73
US (dollar)	1.50	1.50	1.45	3.31	3.31	3.20

SWU Value And UF_6 Value[1]

Country (currency)	SWU Value at 0.30 %/o Tails Assay			UF_6 Value per kg U as UF_6		
	This Month (July 31, 1991)	Last Month (June 30, 1991)	12 Months Ago (July 31, 1990)	This Month (July 31, 1991)	Last Month (June 30, 1991)	12 Months Ago (July 31, 1990)
Australia (dollar)	84.72	76.97	63.16	33.06	35.55	41.05
Belgium (franc)	2,370	2,199	1,651	924.60	1,016	1,073
Canada (dollar)	75.97	67.37	57.62	29.64	31.12	37.46
EC (ecu)	56.17	52.04	38.92	21.91	24.04	25.30
Finland (markka)	277.03	253.02	188.27	108.08	116.86	122.38
France (franc)	391.18	362.12	268.50	152.62	167.25	174.52
Germany (mark)	115.04	106.88	83.15	44.88	49.37	54.05
Italy (lira)	85,870	79,419	58,748	33,502	36,681	38,186
Japan (yen)	9,067	8,121	7,400	3,538	3,751	4,810
Netherlands (guilder)	129.72	120.41	90.50	50.61	55.61	58.82
So. Africa (comm. rand)	189.06	170.32	129.97	73.76	78.67	84.48
So. Korea (won)	48,288	42,735	35,776	18,840	19,738	23,254
Spain (peseta)	7,204	6,699	4,932	2,811	3,094	3,206
Sweden (krona)	417.46	385.87	292.74	162.87	178.22	190.28
Switzerland (franc)	100.52	91.66	67.97	39.22	42.33	44.18
Taiwan (dollar)	1,756	1,583	1,340	685.20	731.11	871.01
UK (pound)	39.13	36.33	27.06	15.27	16.78	17.59
US (dollar)	66.00	59.00	50.00	25.75	27.25	32.50

[1] As of May 1991 Report #273; calculated using currency exchange rates for the last business day of the month, as published in *The Wall Street Journal*. Prior to May 1991 Report #273; calculated using currency exchange rates published in *The Wall Street Journal* on the last business day of the month.

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RECENT DEVELOPMENTS

South Africa

On July 8, South African President F. W. deKlerk signed the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). DeKlerk cited improving relations among the superpowers and their efforts to reduce the arms race, Zambia and Tanzania becoming NPT signatories, and the lessening threat of conventional military conflict in southern Africa, as reasons that contributed to South Africa's decision to sign the NPT.

In a concurrent development, on July 10, US President George Bush lifted all US economic sanctions against South Africa, stating that the process of eliminating apartheid was now irreversible. South Africa had already met four of the five conditions for lifting sanctions, as set forth in the *Comprehensive Anti-Apartheid Act of 1986* (*CAAA*). The five conditions were as follows:

- Legalization of political parties.
- Lifting of the national state of emergency.
- Initiation of good-faith negotiations toward a non-racial government.
- Release of all political prisoners.
- Repeal of apartheid laws on racial segregation.

Early in 1991, in an action supporting the requirement for the repeal of apartheid laws, DeKlerk requested that Parliament dismantle the last remaining legal foundations of discrimination:

- *Group Areas Act*—segregated residential areas of blacks from whites.
- *Land Acts*—made it illegal for blacks to own land, unless the land was within specially designated homelands.
- *Population Registration Act*—required South Africans to register by racial group.

The one unfulfilled condition of the *CAAA* was the release of all political prisoners. Determination of how this stipulation was being met was based largely on the definition of a "political" prisoner. South Africa recently claimed that it had released all political prisoners, as they were defined under the *CAAA*. The African National Congress (ANC), under president Nelson Mandela, vigorously debated with President Bush's staff over the *CAAA* definition, and countered that South African officials still imprisoned nearly one thousand political prisoners. South African officials rejected the ANC claim, stating that the additional prisoners the ANC had identified were being held for acts of violence, and claimed that those acts nullified the prisoners' status as political prisoners under the *CAAA*.

As promised, President Bush advised Nelson Mandela of his decision before concluding negotiations with the DeKlerk government. Final resolution of the political prisoner issue was made on June 28, although details were not available.

The lifted US sanctions had banned:

- Corporate investments and loans to South African governmental agencies.
- Landings at US airports by any aircraft operated by South African Airways.
- Sale of military equipment, nuclear material, and strategic technology to South Africa.
- Importation of South African uranium ore and oxide, steel, iron, aluminum, coal, textiles, and agricultural products.

As a result of the US actions, Japan and Israel both may soon lift their remaining sanctions against South Africa. They had indicated a willingness to lift sanctions once the USA had lifted its sanctions.

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RECENT DEVELOPMENTS

WASHINGTON FOCUS

by Linda L. Gunter

Activity increased in Congress as it prepared to adjourn for its summer recess in August. While the omnibus energy strategy bill has temporarily stalled in the Senate, work continued in the House. In a July 24 event at the White House, President Bush threw his support behind S 1220, the Johnston-Wallop energy policy bill. The Senate is expected to vote on the bill when it returns in September. The House Energy & Commerce Committee has begun markup of its energy bill, but with several committees having jurisdiction, it probably will not reach the full House for a vote before next summer.

Energy Appropriations

◇ During the last week of July, both the House and Senate approved the entire $21.8 billion Energy and Water Development FY 1992 Appropriations Bill (HR 2427). Advanced nuclear energy research and development (R & D) will receive approximately $59.5 million from a total energy R & D allocation of almost $3 billion. DOE's high-level waste program will receive $275 million (about $30 million less than DOE's request). The environmental restoration and waste management account will receive $4.28 billion, which is $60 million more than DOE requested.

AVLIS Funding

◇ On July 30, House and Senate Appropriations Committee conferees met to work out a compromise on funding levels for DOE's uranium enrichment program. While the Senate version of the bill did not provide full funding, it did provide more than the House version, and it allocated funds for proceeding with the Commercial Deployment Contractor Request for Proposals. Unfortunately for the AVLIS program, the conferees agreed to the House version of the bill, leaving AVLIS with only $163.6 million—a reduction of $50 million from the DOE request. If the President signs the bill into law, not only will the program have been cut by over 20 percent, but the deployment decision will be delayed until 1993. In the bill, the total program was reduced an additional $24 million, to $1.313 billion, even though projected revenue is $1.547 billion—an excess of $234 million over the appropriation. The conferees decided to fund the super collider project instead.

Draft of House Uranium Enrichment Bill

◇ In another legislative development, two House committees with jurisdiction over uranium enrichment are rumored to be discussing a joint bill. Staff activity has increased substantially in the last week and a committee draft of the legislation should be available for comment within the next several weeks. Hearings on the bill could begin in September.

USCEA Nuclear Fuel Supply Committee

◇ USCEA's Nuclear Fuel Supply Committee met on July 30. Approximately 75 people heard reports from the various committee and task force chairmen. Jim Glasgow, chairman of the Fuel Supply and Trade Task Force, spoke about the status of two Nuclear Cooperation Agreements the USA has negotiated with Hungary and the Czech and Slovak Federal Republic. The agreements are currently receiving Congressional consideration, and barring unforeseen objections, the agreements will be ratified sometime early next year.

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The main topic of the meeting was industry concern about Nuclear Regulatory Commission (NRC) user fees. A law Congress passed last year authorizes the NRC to collect 100 percent of its budget through user fees for the next five years. Ron Simard of NUMARC explained his efforts to work with the NRC on its budget, in order to prevent the industry from becoming even more regulated. He also indicated the industry also needs to lobby Congress to lift the 100-percent user fee requirement in 1994 and collect data to demonstrate that NRC regulatory activities are excessive. As evidence, he noted that in the past five years, nuclear power plants have gotten demonstrably safer. During this time, there has been little growth in the industry; yet the NRC budget has grown 30.5 percent or about 7 percent per year. He also warned the industry to expect about a 10-percent increase in user fees in FY 1992 because the entire NRC budget has grown about 10 percent.

Sandford I. Rock of Allied-Signal Company talked about his successful efforts to reduce the user fees for convertors by $200,000 per year. He said that these user fees were another form of taxation, which in a highly competitive world market, made the convertors less competitive. He also questioned whether NRC safeguards are necessary for convertors, since convertors are essentially chemical process plants similar to uranium mines and mills, which have fewer regulations and thus, lower user fees. The convertors have asked the NRC to demonstrate a strict cost-benefit between the services provided and the user fees charged. He noted that the state of Illinois has an agreement with the NRC allowing state regulation of some nuclear facilities. However, the NRC refuses to allow the state to regulate the Allied plant, claiming national security implications, thus retaining the money collected from the user fees. Comments from the audience after his presentation indicated that fuel cycle facilities are taking a close look at what licenses they hold; if some licenses are not absolutely necessary, they likely will not be renewed.

ITC requested to Investigate Uranium Imports

Responding to a May 24 letter from four senators on the Senate Energy and Natural Resources Committee, the Senate Finance Committee sent a letter on July 25 to the International Trade Commission (ITC) requesting a report on the effect on US industry of imports of uranium and enriched uranium from non-market countries. The ITC was requested to assess the impact of enriched and natural uranium imports from non-market economies, and provide information about the uranium enrichment industry in the USA and in non-market countries, such as the Soviet Union, and the People's Republic of China. The letter requires the ITC to submit its report by July 25, 1992. ITC staff indicate they will begin collecting information in September.

House Rejects a DOE Reprogramming Request

In a somewhat unusual request, DOE asked for Congressional approval to reprogram $15 million of uranium enrichment program funds from FY 1991 to close out activities on the defense side of the Special Isotopic Separator (SIS) program. The SIS was a sister program of AVLIS, sharing laser research at Lawrence Livermore National Laboratory. The House rejected the request, noting that funds for close out of the SIS program had been allocated in the Defense Authorization Act of FY 1991 and should be used as allocated.

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INDUSTRY BRIEFS

Argentina and Brazil Sign Non-Proliferation Accord

At a meeting of Latin American leaders in Guadalajara, Mexico on July 18-19, the presidents of Argentina and Brazil signed an accord on the peaceful uses of nuclear energy. The treaty outlines specific measuring systems for the accounting of nuclear-related material. The two countries are continuing to work out other details, which will eventually lead to full entry into force of the Treaty for the Prohibition of Nuclear Weapons in Latin America (Tlatelolco Treaty) and implementation of full IAEA non-proliferation safeguards.

◆◆◆

Total/Malapai Announce Restart of Two ISL Projects

Total Minerals, operator of the Malapai/Total joint-venture uranium properties at Christensen Ranch, Wyoming, and El Mesquite, Texas, announced that it would restart those two projects as of August 1. The in-situ leach (ISL) projects are being restarted to establish production costs after a lengthy period of standby status. Production from the two projects will be used to fulfill long-term contract commitments. Additional information regarding these projects can be found in the *EXPLORATION AND DEVELOPMENT UPDATE* in this report.

Yankee Rowe License Extension Request May Be Dropped

In mid-July, officials at Yankee Atomic Electric Company postponed submitting to the Nuclear Regulatory Commission (NRC) a operating license-extension request for Yankee's Rowe, Massachusetts nuclear plant. The 167-MWe PWR began commercial operation in 1961, and is the oldest operating commercial reactor in the USA. Concern about the level of embrittlement of the reactor containment vessel has made the plant a center of debate in the US nuclear industry's efforts to obtain its first 20-year license extension.

The NRC recently reversed its earlier approval of the license extension ruling, at the urging of its new chairman, Ivan Selin, who objected to his predecessor's approval of a ruling prior to finalization of the wording. The reversal requires that the commission consider the ruling's final wording before granting approval. The reversal essentially forced Yankee to delay submittal of its extension request.

This delay, new uncertainty of the final ruling's requirements, and vocal opposition to the plant's current operation has Yankee reconsidering how and when to proceed with a license extension request, if at all. An NRC official stated that the plant will not be permitted to restart after an April 1992 refueling outage until there is evidence that the embrittlement is within NRC standards.

Korea Selects ABB and GE To Supply Two New Plants

Korea Electric Power Corporation (Kepco) has selected the suppliers for its Uljin 3 and 4 units. These 943-MWe (net) reactors are planned for completion by 1998 and 1999, respectively. ASEA Brown-Boveri/Combustion Engineering (ABB-CE) was selected to supply the nuclear steam supply systems, and General Electric Corporation (GE) was selected to supply the steam turbines.

ABB-CE got the bulk of the contracts, worth approximately US$200 million, mostly due to its having supplied these same systems for Yonggwang 3 and 4, which are to be completed in 1995 and 1996 respectively, and due to its willingness to transfer technology to Korea, which has a long-term goal of energy self-sufficiency. A large part of the reactor components will be Korean-built licensed designs.

◆◆◆

Canadian Consortium Signs Cleanup Deal With Wismut

A consortium of Canadian firms have signed an agreement with Wismut AG, the former East German-Soviet mining company, to provide expertise and technology to clean up over 40 mine and tailings sites. Initial preparations and site analysis will begin this fall. Estimates for the cleanup range from US$7 billion to as high as $20 billion, and may require 10-15 years.

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US Reactors Reach Records

On July 22, GPU Nuclear Corporation's 808-MWe (net) Three Mile Island 1 (TMI 1) unit surpassed the standing record of 477 days of continuous operation for a light water reactor. On July 24, the reactor automatically tripped due to an error during testing, and was off-line for a couple days. The old record was set in 1988 by Omaha Public Power District's 478-MWe Fort Calhoun 1 reactor.

The opportunity is now available to the 1,135-MWe Wolf Creek unit, operated by Kansas Gas & Electric Company, to surpass the 480-day TMI 1 record. The Wolf Creek reactor can increase the record to 486 days if it operates continuously until its scheduled September 19 refueling outage.

Two other US reactors surpassed the 100-billion kWh lifetime generation mark. Duke Power's 846-MWe Oconee 1 unit reached that achievement at 10:39 a.m. on July 28, the first ever to do so in the USA. The following day, American Electric Power Company's 1,202-MWe Cook 1 unit also reached that mark. Previously, only reactors in Germany and Belgium had attained this level of generation.

Bulgaria To Close Kozloduy VVER-440s For Upgrading

In mid-July, the government of Bulgaria announced that two of the first-generation VVER-440s (Model 230) at the Kozloduy station will be closed, on August 15 and September 15, for upgrading. The upgrading, much of it to improve plant safety, will be performed by a consortium of French, German, Belgian, and British firms.

The Kozloduy station has four VVER-440s, and two VVER-1000s. Since both VVER-1000s are not in operation—one is down for lengthy repairs and the other is awaiting initial start up—only two of the four VVER-440s will be shutdown for upgrading at any one time. The remaining two reactors must be kept operating to meet Bulgaria's electricity demand.

During June, an IAEA OSART (Operational SAfety Review Team) inspected the four VVER-440s, and the team's report cited numerous safety concerns about equipment and operating procedures. The OSART did not recommend that the reactors continue to operate.

◆◆◆

China Agrees To Sign NPT

China's Premier Li Peng announced on August 10 that China will sign the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). Premier Li stated that China had agreed "in principle" to sign the NPT, and would do so without any conditions, but did not announce a date for the signing to take place. China was the last major nuclear power that had not agreed to sign the NPT.

Japanese Centrifuge Enrichment Plant Receives Final Approval For Start-Up

Japan Nuclear Fuel Industries' (JNFI) centrifuge enrichment plant at Rokkasho-mura, in Japan's Aomori Prefecture, concluded a safety agreement with the Aomori and Rokkasho-mura governments in late July, thereby permitting the plant to begin operation. JNFI had received final national approval in late May when the Science and Technology Agency issued a facility inspection certificate, permitting an initial capacity of 150,000 SWU per year. The plant should be in full operation by early 1992.

The safety agreement covers 22 issues, such as notification of nuclear material transportation, spot inspections following accidents, compensation for accidents, and so forth. The national government has authority for safety regulations for nuclear-related facilities, while local governments are given very little authority and must pursue their efforts through national government channels. For this reason, the JNFI safety agreement with the local governments carries little legal weight, but is more in the spirit of a gentlemen's agreement, indicating JNFI's desire to work with the local communities in their safety concerns.

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INTERVIEW

INTERVIEW WITH MR. ALBERT A. SHISHKIN AND MR. BORIS V. NIKIPELOV OF THE SOVIET UNION'S MINISTRY OF ATOMIC ENERGY AND INDUSTRY

NUEXCO first interviewed Mr. Nikipelov in the fall of 1989 (Monthly Report #255, November 1989, page 21) on the subject of V/O Techsnabexport (TENEX) and its growing commercial presence in the international nuclear fuel market. In that interview, Mr. Nikipelov, First Deputy Minister of the Ministry of Atomic Energy and Industry (MAEI), concluded with a discussion of the non-nuclear production capability within the Ministry. He also emphasized the mutual benefits that might be derived from increased international trade in these areas. In this follow-up interview, Mr. Albert A. Shishkin, General Director of TENEX, joins Mr. Nikipelov in giving us more detail on the state-sponsored program of converting the production capacity of the Soviet nuclear fuel cycle and its supporting infrastructure from defense and power generation to commercial purposes.

Mr. Albert A. Shiskin
General Director of V/O Techsnabexport (TENEX)

Mr. Boris V. Nikipelov
First Deputy Minister of the Ministry of Atomic Energy and Industry

NUEXCO — Mr. Shishkin and Mr. Nikipelov, what is the relationship between your organization, Techsnabexport, and the Ministry?

MR. SHISHKIN — The Ministry for Atomic Energy and Industry was established in 1989 by combining two Ministries: Atomic Energy and Medium Machine Building. The Ministry's primary mission is the building and operation of the commercial nuclear fuel cycle. TENEX, a foreign trade organization within MAEI, is best known for its role in support of the Ministry's primary mission—the promotion of international trade in the goods and services associated with the civilian nuclear power business. But, TENEX's role goes far beyond nuclear power; it represents all of the various industrial and research organizations of MAEI in their import-export activities.

NUEXCO — What are those other activities of MAEI?

MR. NIKIPELOV — In addition to the nuclear fuel cycle, the Ministry is responsible for nuclear instruments, including those used for medical research and radiation therapy. The Ministry manufactures secondary products or by-products from its nuclear fuel cycle production. And in accordance with our nation's latest five-year economic plan, whose top priority is to improve availability of consumer goods, the Ministry has also acquired responsibility for development of the capability to manufacture dairy equipment and for the production of a number of durable consumer goods, such as videocassette recorders and other consumer electronics items. Thus, while TENEX is known primarily for its sales of enriched uranium and SWU, commercial officials also sell medical instruments, accelerators, lasers, rare earths, alloying elements, and related products—all important facets of our conversion program.

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NUEXCO — As the Soviet Union converts its nuclear sector to commercial applications, the sector can be expected to generate large amounts of hard currency. How will those funds be used? And will they be controlled by MAEI, by TENEX, or by some other part of the Soviet government?

MR. SHISHKIN — First, these funds are not going to be used for military purposes of any kind. Second, they will not be used for the development of nuclear power stations of any kind. These funds can be used for improving reactor safety, a concern of all nations, not just of the nations in which power reactors are located.

The hard currency generated by our conversion activities will be used for three main purposes:

- The purchase of technology and equipment for production, processing, and packaging of milk and milk products.
- The purchase of durable consumer goods (not foodstuffs or grain) and equipment for the manufacture of consumer goods.
- The purchase of equipment and technology for the Soviet manufacture of personal computers (not for military use).

Part of the funds will be used to cover the Soviet Union's participation in related production joint ventures. Other purchases will be made through barter transactions, so buyers will be able to see the purpose to which the currency is applied. Depending on the volume of hard currency generated, part of the foreign exchange earnings also may be used for the purchase of technology and equipment for the reduction and processing of industrial pollutants and waste products.

NUEXCO — What other products and services are derived from the Ministry's activities?

MR. SHISHKIN — Sales of:

- Natural uranium and other nuclear fuel components.
- Equipment using radioisotopes, plus the radioisotopes themselves (Co-60, Cs-137, Pu-238, Np-237) and products using tritium.
- Stable isotopes.
- Instruments and measuring equipment.
- Accelerators, lasers, and associated equipment.
- Beryllium and beryllium ceramic.
- Zirconium.
- Lithium.
- Scandium.
- Rare earths.
- Molybdenum.
- Nitrates and phosphates for fertilizers.
- Emeralds and colored stones.

Based on our technology, we are also establishing joint ventures with foreign manufacturers, the operations of which are located in the USSR. We will strive to increase trade volume, not only for the benefits to our economy, but because trade is a motive for progress and a stimulus for peace.

NUEXCO — What historical developments have led to the current program of conversion?

MR. NIKIPELOV — Nuclear manufacture in the USSR was launched in the late 1940s and early 1950s to warranty the country's defense capability and strategic parity in the domain of nuclear weapons. Being geared to resolve not only defense problems, but also other essential issues of national economy including peaceful use of atomic power, the nuclear sector has been expanding dynamically and is represented today by an array of major R&D and production complexes with developed internal links and intra-sectoral cooperation and specialization, including:

- Uranium mining and processing works, sublimation and enriching (uranium isotope separation) plants, factories making fuel assemblies and nuclear propulsion units for various uses, and radiochemical plants processing spent nuclear fuel for maintaining a closed fuel cycle (these plants constitute a fuel cycle subsector).
- Nuclear power generation.
- Defense works.
- Machinery- and instrument-making factories.
- R&D and engineering-design institutions conducting fundamental and applied research.

Because of the ongoing process of normalization of international relations and successful US-Soviet efforts focused on the progress of disarmament, the sector's portfolio of orders for nuclear weapons materials has been dwindling. The stockpiling of highly enriched uranium for military purposes was completely terminated as far back as 1988. Five major reactors for plutonium production have been closed down, as well as a radiochemical plant for plutonium extraction and purification.

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This military reduction overlapped a drastic slowdown in development of the country's nuclear power generation, which occurred for a number of reasons, the Chernobyl disaster having been the primary one. Consequently, not only has the demand for natural and enriched uranium sharply diminished, but reorientation has become a necessity: reorientation of production facilities at instrument- and machinery-making factories, of construction and installation companies, and of the nuclear industry's entire manufacturing capability.

NUEXCO — What sorts of goals have been established for this rather ambitious conversion program?

MR. SHISHKIN — The sector's specialists have approached the problem comprehensively by working out objective-oriented scientific and technological conversion programs tied to the main lines of activities. The overall goal has been formulated to:

1) Make fuller use of the available engineering concepts and technological developments of the sector's R&D and design institutions.
2) Ensure the optimum use of existing equipment, personnel skills, and specific performance features of the established production teams of the factories and plants.
3) Find new applications for the raw and processed stock produced by the sector's works, as well as the materials and technologies already in use, and employ them in parallel with the main production of fissionable materials as a basis for launching the output of new products for the national economy.
4) Retain the nuclear sector's distinctive product quality and comprehensive high-tech attitudes, though this time not only in the traditional output of the industry, but also in goods produced for the national economy in general.

NUEXCO — Can you give our readers a bit more detail on the organizations and facilities involved in the Ministry's portion of this national program of conversion?

MR. NIKIPELOV — The sector's R&D institutions engaged in both fundamental and applied research are all located in or near Moscow and include:

- I. V. Kurchatov Atomic Power Institute.
- Institute of High Energy Physics in Protvino.
- Institute of Theoretical and Experimental Physics.
- All-Union Scientific-Research Institutes of Inorganic Materials and Chemical Technology.

Engineering-design institutions include:

- Scientific Research and Design Institute of Power Technologies.
- All-Union Scientific Research Instrument-Making Institute.
- All-Union Scientific Research Institute of Nuclear Technologies.
- Sverdlovsk Institute of Chemical Engineering.

The conversion program also includes other institutions specializing in the design of nuclear reactors, instrumentation, and equipment. These institutions have been developing advanced technologies that hold a high promise of profitable implementation. The manufacturing facilities of the sector are many-faceted:

- Instrument manufacturing facilities producing devices not only for the industry's own use, but also for application to other issues involving radioactivity, such as industrial and medical units with radioactive isotopes.
- Engineering factories producing essential equipment for nuclear power plants (for example, the Atommash factory in Volgodonsk), machinery for mining works, chemical plants, etc.
- Large-scale construction and installation companies and works fabricating construction materials.

In their entirety, these institutions make the sector capable of restructuring itself on short notice and launching new production facilities for implementing new and promising developments.

NUEXCO — Can you describe for us some of the ways in which technology developed for the nuclear fuel cycle can be adapted to commercial purposes?

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MR. NIKIPELOV — Yes, let us begin with two examples.

- The traditional hydrometallurgical technologies of the nuclear fuel cycle, with their comprehensive processing of ore materials, also yield such by-products as molybdenum, rhenium, scandium, and others.
- The production teams and equipment of the works that mine uranium ores may be employed, under conversion programs, to develop other adjoining, undeveloped mineral deposits.

Reflecting these two aspects, the objective-oriented program, "Prospective Materials, Rare Earths, Nonferrous and Noble Metals, and Articles Made of Them", envisages stepping up the volume of extraction and production of metals and their compounds, and high-purity alloys, among which are: tungsten, molybdenum, tantalum, vanadium, niobium, scandium, tin, manganese, calcium, synthetic quartz, titanium oxide catalysts, ion-exchange resins, and various ceramics. The program also anticipates increased production of corresponding finished items such as roiled metal, master alloys, powders, and pure compounds.

The annual output of this program is planned to reach two billion rubles by 1995. The major objective of this raised output is to curtail sharply the country's import of the products listed, and given adequate mutual interest, their export appears to be quite feasible. The feasibility is supported by the sector's employing its own sorption and extraction technologies in producing the metals, and ensuring high economic indicators and product quality. In addition, the industry's enterprises are going to employ these technologies for the increased output of gold. Our specialists are fully prepared to introduce the technologies to enterprises abroad. The purity of the yielded metal (to 99.99%), the high factor of its recovery even from lean ores containing 1-2 grams per ton, and the technology's economic ratings, make renovating existing facilities or launching new ones profitable.

Worth special mention is the sector's planned production increase of rare-earth metals such as cerium neodymium, praseodymium, gadolinium, europium, yttrium, erbium, and others. We are aiming at the output of not only the metals and their alloys, but also of finished products, such as ceramic and piezoceramic materials and articles, neodymium- and samarium-based magnets, phosphors for color TV, chemical power cells (CPC), and other goods.

NUEXCO — Is it true that you have a significant capability in the area of industrial diamonds? If so, what sort of capacity do you have?

MR. NIKIPELOV — Yes. Let us consider specifically production of technical diamonds and output of natural diamonds for various applications. This activity is based on a number of technologies developed within the industry for producing technical diamonds and applying diamond films onto surfaces of components, for example, computer memory disks. The technologies allow flexibility in putting out technical crystals of different grain sizes, and in quality and production costs, which provide for a broad spectrum of their application in diverse processes. Moreover, the territory adjoining one of the Ministry's production centers in Kazakhstan houses a unique deposit of technical diamonds, combining magnificent hardness ratings with facilitated mining conditions.

Using the diamonds, the sector has been mastering the manufacture of various tools, composites, lapping and polishing powders, and lubricants. Planned for the present five-year period is the output of natural technical diamonds in an annual volume up to 1.5 million carats, and of various 5 to 45 micrometer powders of low production cost.

NUEXCO — Do you have commercial capabilities in other stones?

MR. SHISHKIN — Yes. The output of color and facing stones such as marble, granite, granodiorite, amazonite, and others is rising to an annual volume of 30-50 thousand cubic meters. The industry has increased its production of zeolite, and launched the fabrication of a wide assortment of jewelry and bijouterie, from color stones and metallic zirconium to cut emeralds, gold, and silver.

NUEXCO — What about rare earths and rare metals?

MR. SHISHKIN — Yes. The output of the above-mentioned rare-earth and rare metals involves the sector's metallurgical works. Lately, the latter have been initiating various new lines of production based on the metals they have been producing traditionally: aluminum, zirconium, and lithium. Their conversion program uses pure aluminum for making computer memory disks and casting wheels for motorcycles and mopeds; produces zirconium alloys

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and zirconium ceramics; and employs lithium and pure manganese dioxide to produce CPCs and other diverse products.

NUEXCO — How can something like a radiochemical plant be turned to commercial use?

MR. NIKIPELOV — With their highly specific products, radiochemical plants are the hardest to convert. However, they can be reprogrammed either to process the spent fuel of nuclear power plants or expand the output of radioisotope products. Thus, the radiochemical complex near Chelyabinsk has adapted its facilities, formerly employed for defense purposes, to processing the depleted fuel of water-moderated, water-cooled power reactors, and is also stepping up the output of radioactive isotope sources. These lines of production could serve as a basis for broader scientific, technological, and economic cooperation (in joint ventures) with foreign partners.

The specific traits of radiochemistry (remotely controlled plants and technologies capable of high degrees of purification and separation), make it possible, by way of conversion, to initiate the output of extra-pure materials such as silicon, gallium, and other elements for electronics. For this capability the sector has elaborate programs for development and production of components for fiber optics and systems incorporating such components, for extra-pure materials, and for components and functional devices in the area of microelectronics.

NUEXCO — What other areas are targeted for conversion?

MR. SHISHKIN — The sector's machinery- and instrument-making factories supporting the main production lines have not been overlooked in conversion programs. They are increasing considerably the output of process equipment for treating milk and dairy products, to be marketed in a package including post-warranty servicing.

A special part of the program is the development and manufacture of medical instrumentation and equipment. Numerous items enjoy demand on the international market such as cardiac valves and accelerators for topography and therapy.

The industry plans a fivefold increase of its output of manufactured consumer goods by 1995. This output will be based on the materials that are to become traditional for the sector in the nearest future: washing machines and other articles incorporating piezoceramics, and neutralizers of exhaust gases from automotive vehicles. We are also planning to manufacture household radioelectronic devices, ozone safe refrigerants, household chemicals, and fertilizers.

NUEXCO — It appears that successful conversion will depend on technical cooperation with foreign organizations, as well as on sales to foreign customers. Would you agree?

MR. NIKIPELOV — Yes. The industry's high scientific and technological potential, its multifaceted and multi-product industry, and the shrinking of State orders for traditional uranium products have made enterprises and institutions eager to establish broader international links and to build a higher profile on the world market.

We seek to increase the volume of sales of our traditional products and to broaden the use of our technologies abroad. At the same time, we aim to introduce foreign technologies to our enterprises in areas where we are lag behind, such as consumer goods production and the manufacture of equipment for the processing sectors of the agro-industrial complex.

Enterprises are ready to use diverse ways to achieve these goals, provided both sides involved benefit from them, such as setting up joint ventures, joint-stock companies, or concluding barter deals.

NUEXCO — I understand you already have several joint ventures in operation. Could you describe them?

MR. SHISHKIN — The Ministry has launched eleven successfully operating joint ventures, that are active in a broad range of goods and services:

- Assembling data processing equipment, maintaining that equipment, and developing its software:
  - INCOMPEX–USSR/Finland/Germany
  - UNICOM–USSR/Austria
  - INTERDUM–USSR/Great Britain
  - IDOL–USSR/Hungary
- Manufacturing Polaroid-type cameras:
  - SVETOZOR–USSR/USA
- Manufacturing automatic milk dispensing units:
  - TETRA-LUNCH–USSR/Sweden

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- Manufacturing flowmeter and other devices for diagnostics:
  - KRONA-ISKRA–USSR/Germany
- Cutting emeralds:
  - EMURAL–USSR/Panama
- Making isotope products:
  - ISOFLEX–USSR/Great Britain
- Making rare-earth products:
  - EUROSTRON–USSR/Poland
- Recycling industrial and municipal waste:
  - UTILEX–USSR/German

The sector's plans include: establishing new joint ventures for making jewelry of gold and precious stones; producing and working marble and granite; manufacturing furniture, window units, milk trucks, valves and fittings for milk lines, linoleum, computer disk drives, and medical gamma-ray chambers.

NUEXCO — Assuming these conversion activities produce goods that are sold abroad, thereby generating foreign exchange, how will the domestic supply of consumer goods be affected?

MR. NIKIPELOV — The conversion framework includes setting up new enterprises, thus making it possible to saturate the domestic market with consumer goods. Among these enterprises are: a toothpaste factory in Shevchenko, factories making magnetic tape and audio cassettes in Krasnoyarsk, television assembly factories in Krasnoyarsk and Sverdlovsk, a factory assembling laser video and audio players and fabricating video disks in Sverdlovsk, a microwave manufacturing factory in Frunze a factory in Nizhny Novgorod making units for satellite TV systems, and "artificial kidney" assembly lines in Sverdlovsk.

NUEXCO — What sort of promotional activities have you undertaken in this area?

MR. SHISHKIN — In order to better inform their potential partners, the sector's enterprises took part in the "Conversion '90" exhibition held in Munich, Germany in 1990, and they are getting ready for the "Conversion '91" exhibition to be held in Bologna, Italy. We seek to establish permanent information centers in the USA, the Republic of Korea, and Spain.

NUEXCO — In conclusion, is there any message you would like NUEXCO's readers to pass on to their colleagues?

MR. SHISHKIN — Yes. Substantial increases in trade between my country and those of your readers are highly beneficial in promoting peace, and that is even more important than the very real economic benefit to be gained. Considering the possible benefits of world peace, we look forward eagerly to helping to strengthen existing trade bonds between our country and those of your readers. In broadening our scientific-technical and trade contacts, we have great hopes for assistance on the part of our traditional partners, such as NUEXCO in the USA, Urangesellschaft in Germany, and Cogema in France. Conversion is an international task in which it is both necessary and more efficient to undertake jointly.

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NUEXCO

URANIUM EXPLORATION AND DEVELOPMENT UPDATE

Large inventories and depressed market prices continue to dampen any significant exploration and development in the world's uranium industry. Minimal activity is ongoing, as the exploration industry tries to survive. Several consolidations within the uranium industry have highlighted the year thus far.

General Atomics — Chevron Resources

In June, Chevron announced that a definitive agreement had been reached with General Atomics (GA) of San Diego, California, whereby GA will purchase all of Chevron's uranium assets in the USA and Canada. These assets include the Panna Maria uranium mill, a 55-percent share of the Rhode Ranch uranium mine in south Texas, the Mt. Taylor uranium mine in New Mexico (the largest known uranium deposit in the USA), and exploration properties in Saskatchewan, Canada. Along with Unocal's recent sale of its Sweetwater property, the agreements mark the exit of the last US oil companies from the uranium industry in the USA. Terms of the GA-Chevron agreement were not released.

General Atomics — Tennessee Valley Authority (TVA)

GA also purchased TVA's Powder River Basin uranium properties in Wyoming during May. GA paid $1.6 million for several leases and claims containing reserves estimated at up to 10 million pounds equivalent U_3O_8.

Power Resources Inc. — Tennessee Valley Authority

At the end of April, Power Resources Inc. (PRI) acquired all of TVA's in-situ leaching (ISL) properties in the Gas Hills region of Wyoming, with estimated resources of as much as 20 million pounds U_3O_8. TVA retained the open pit properties in the Gas Hills, which contain uranium resources of up to five million pounds.

Unocal — Green Mountain Mining Venture

Unocal Corporation announced in July that it had agreed to sell its Sweetwater uranium property to the Green Mountain Mining Venture, a joint venture between Kennecott Corporation, and US Energy Corporation and its subsidiary Crested Corporation. The joint venture will purchase the Wyoming property and its mill, and will assume specified environmental liabilities. The purchase will enable the joint venture to use the existing mill to process ore from its nearby Green Mountain project, once it begins operation.

Rio Algom — URI

At the end of May, Rio Algom, Ltd. (RAL) and Uranium Resources, Inc. (URI) agreed to a merger in which Rio Algom Mining Corporation (wholly owned by RAL) will acquire all outstanding URI shares. Rio Algom already owned eight percent of URI, and will pay US$6.40 per share, or approximately US$41 million, to buy the outstanding shares. Rio Algom likely will benefit from URI's current contracts and its technical expertise, particularly with respect to ISL technology. Some of URI's solution mining properties include: Kingsville Dome and Rosita in Texas, and Churchrock in New Mexico. The transaction probably will be concluded by the third quarter of 1991.

Energy Fuels — Oren L. Benton

On January 16, 1991, John Adams, Chairman of Energy Fuels, and Oren Benton, owner of NUEXCO, announced a joint venture involving all of the uranium operations of Energy Fuels. Energy Fuels, which was founded in 1972, has been the largest US uranium producer since 1986. Its mining operations, however, are currently on standby. The company holds over 20 million pounds of uranium reserves located in Mojave County, Arizona.

Energy Resources of Australia (ERA) — Pancontinental

In early July, North Broken Hill Peko (NBH) announced its decision to purchase the Jabiluka uranium deposit from Pancontinental for A$125 million. But later in July, ERA, 65-percent owned by NBH, announced it, rather than NBH, would purchase Jabiluka. Pancontinental will sell 100 percent of Jabiluka after exercising a 1987 option to acquire Texaco's 35-percent share for A$30 million. The transaction, which was in negotiation for more than six months, will almost certainly result in the eventual processing of Jabiluka ore (estimated to contain more than 450 million pounds equivalent U_3O_8) at ERA's nearby Ranger mill. ERA owns and operates the Ranger facility, approximately 15 km from the Jabiluka site. Although development of the ore body is not expected in the near future, this transaction clearly sets the stage for mining Jabiluka, even if the government's current uranium policy remains unchanged.

In June, the Australian Labor Party (ALP), voted to maintain its current three-mines policy and block any expansion of

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Australia's uranium industry. This decision, made at the ALP's biennial conference, came as something of a surprise, since prior to the conference, the ALP's own uranium policy review committee and several high-ranking party officials had recommended abandoning the restrictive policy.

In mid-July, it became openly known that NBH's intention was eventually to develop the Jabiluka deposit, process the ore at the Ranger mill, and export the ore under Ranger's existing license (thereby circumventing the government's uranium policy restrictions). Australian Prime Minister Bob Hawke declared, through the news media, that he strongly opposed any such intention and that he would stop any efforts to mine Jabiluka while the three-mines policy remained in effect.

Ontario Hydro Contract Renegotiations

Another important development during the first half of 1991 was Ontario Hydro's long-term uranium supply contract negotiations with Denison Mines and Rio Algom. Ontario Hydro exercised an escape clause in its long-term contracts with both producers, allowing it to terminate deliveries under the contracts if it had paid substantially greater than market price for five consecutive years.

Following unsuccessful price negotiations, Ontario Hydro gave notice to Denison Mines that it would terminate its contract at the end of 1992. During 1990, Denison downsized its Elliot Lake, Ontario operation to approximately 60 percent of its previous level. Since Ontario Hydro was Denison's sole Elliot Lake customer, Denison had planned to further reduce its production rate in June 1991 from 2.7 million pounds U_3O_8 per year, to 1.4 million pounds, the amount scheduled for delivery under the contract. However, Denison cancelled its plans to scale back production after Ontario Hydro agreed to take delivery of the remaining contract quantity under an advanced schedule. This action will permit the mine to continue producing at current levels through the first quarter of 1992, after which the mine will close.

On the other hand, Rio Algom and Ontario Hydro managed to successfully conclude a revised contract. Ontario's ruling New Democratic Party was also involved in the negotiations. Under terms of the agreement, Ontario Hydro will purchase 3.7 million pounds U_3O_8 under the higher-priced terms of the original contract for delivery through 1993. Subsequent deliveries during 1993-1996 will total 5.9 million pounds, and will be much closer to current market prices. In addition, Ontario Hydro agreed to contribute C$65 million between 1991 and 1993 to the Northern Ontario Heritage Fund Corporation for retraining workers and reducing municipal debt at Elliot Lake.

EXPLORATION ACTIVITY

All of the industry consolidations and developments will affect, directly or indirectly, the struggling exploration and development industry. Declining market prices continue to make exploration programs even less attractive. Therefore, only limited uranium exploration activity is occurring in most regions of the world.

Australia

Due to the continuation of the Australian government's three-mine policy, uranium exploration and development remains at very low levels. Some drilling was conducted at the Kintyre deposit in Western Australia to further explore, define, and evaluate the deposit, but most exploration activity in Australia has ceased until government policies change.

United States

Total exploration drilling rigs in operation in the US industry ranged from zero in January, to sixteen in June. During the same interval, the number of development rigs ranged from 10 to 20. Traditionally, the peak drilling season in the USA is late summer and fall, during which the total rig count could reach 40 to 50.

Arizona Strip

Energy Fuels Nuclear (EF) and Pathfinder Mines were the only producers conducting work in the Arizona Strip. EF discontinued mining at its Kanab North site in mid-March, and began a 14-week drilling program on the north edge of the canyon in May. Pathfinder's activity in the strip involved one exploratory drilling rig north of the canyon.

Nebraska

Ferret Exploration of Nebraska (FEN) operated several development rigs at its Crow Butte site. Production began this spring and has been progressing according to plan. FEN continues to improve its wellfield balance as it moves toward full commercial operation. Ferret Exploration (the parent company of FEN) also conducted some further exploratory drilling at some of its sites in Nebraska and Colorado.

Texas

Another significant development was the recent announcement by Total Minerals/Malapai Resources that it intended to restart in-situ leaching (ISL) operations at El Mesquite, Texas as of August 1. The El Mesquite mine is located approximately 100 miles west of Corpus Christi and

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contains about 3 million pounds of recoverable reserves at an average grade of 0.10 % U_3O_8. Total Minerals also continued exploratory drilling at its Alta Mesa site.

Wyoming

Total/Malapai also announced that it would resume ISL production at its Christensen Ranch property as soon as it verifies that all mine systems are operating properly. The site, located in the northern Powder River Basin, contains 17.6 million pounds of recoverable reserves at an average grade of 0.116 % U_3O_8.

In other areas of Wyoming, some exploratory work occurred at the Green Mountain site, under the joint venture between US Energy Corporation and Kennecott Corporation. Earlier this year, Uranerz, USA sold all of its Wyoming uranium properties to Pathfinder Mines, including the Ruth and North Butte projects. Pathfinder has indicated that assessment drilling will begin later this year.

Canada

Limited drilling activity is underway in Saskatchewan, primarily due to seasonal restrictions. Interuranium Canada Ltd. conducted some exploratory drilling early in the year in the Athabasca Basin, and has indicated it will resume drilling during the winter of 1992. Elsewhere in the Athabasca Basin, Cameco did some drilling at Rabbit Lake and also has been conducting further exploratory drilling at its recently discovered McArthur River site. Partners in the McArthur River Joint Venture are Cameco (43.991%), Uranerz Exploration and Mining Ltd. (29.444%), Agip Resources Ltd. (10.0%), Interuranium Canada Ltd. (9.063%), Cogema Canada Ltd. (6.502%), and Imperial Metals Corp. (1.0%).

Cameco also conducted an initial public stock offering in late June, as it begins to privatize. Underwriters issuing the 10.4 million treasury shares at C$12.50 per share received firm orders for the entire quantity by the close of the first business day after the offering was announced. Cameco will receive C$130 million, less underwriting fees, and give the public a 20-percent share of the company; the province of Saskatchewan and the Canadian government own the balance of the company. Future stock offerings are planned as the company intends to become almost entirely privately owned.

CONCLUSION

With market conditions and excess inventories continuing to be the most important influence on the market, uranium exploration and development will maintain merely a subsistence level of activity. With such limited activity, the major factors affecting the exploration industry will be consolidations and company reorganizations. But with each passing month, inventories grow smaller and the need for new resources increases. Consequently, the exploration and development branch of the uranium industry must simply wait until it can again be a vital and growing portion of the industry.

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NUCLEAR INDUSTRY CALENDAR

1991

Sept. 2-6 ***International Conference on the Safety of Nuclear Power: Strategy for the Future*** (Vienna, Austria).
Contact: IAEA Conference Service Station; 43-1-2360; Fax: 43-1-234564;
or mail: PO Box 100, A-1400 Vienna, Austria.

Sept. 4-6 ***Uranium Institute Sixteenth Annual Symposium*** (London, UK).
Contact: Uranium Institute; 44-71-225-0303; or Fax: 44-71-225-0308.

Sept. 22-25 ***International Uranium Seminar '91*** (The Don Cesar Hotel, St. Petersburg/Tampa, Florida).
Sponsored by the U. S. Council for Energy Awareness.
Contact: USCEA Conference Office; 202-293-0770; Telex: 7108249602; Fax: 202-785-4113.

Sept. 29-Oct. 2 ***American Mining Congress Mining Convention*** (Salt Lake City, Utah).
Contact: AMC Convention Office: 202-861-2800; or Fax: 202-861-7535.

Oct. 24 ***Canadian Participation in World Fusion: Opportunities and Challenges*** (Skyline Hotel, Ottawa, Canada).
Sponsored by the Canadian Nuclear Association and the Canadian Nuclear Society.
Contact: Sylvie Caron, CNA; 416-977-6152; Fax: 416-979-8356;
or mail: 144 Front St., Suite 725, Toronto, Ontario, Canada M5J 2L7.

Oct. 29-31 ***Uranium Hexafluoride Handling*** (William G. Pollard Auditorium, Oak Ridge, Tennessee).
Sponsored by Martin Marietta Energy Systems, Inc.
Contact: Diane Duck, MMES; 615-576-1676; or Fax: 615-576-1561.

Nov. 10-13 ***Nuclear Energy Forum*** (Westin St. Francis Hotel, San Francisco, California).
Sponsored by the U. S. Council for Energy Awareness.
Contact: USCEA Conference Office; 202-293-0770; Telex: 7108249602; Fax: 202-785-4113.

Nov. 10-15 ***American Nuclear Society Winter Meeting*** (Hilton Hotel, San Francisco, California).
Contact: ANS Meetings Department; 708-352-6611.

1992

April 12-16 ***8th Pacific Basin Conference*** (Taipei, Taiwan).
Sponsored by the Amercian Nuclear Society.
Contact: ANS Meetings Department; 708-352-6611.

Sept. 21-23 ***Second International Conference on Training for Operation & Maintenance in the Nuclear Industry***
(The Moat House International Hotel, Stratford-upon-Avon, United Kingdom).
Sponsored by the Institution of Nuclear Engineers.
Contact: INE Conference Secretary; 081-698-1500 or 081-698-4750; Fax: 018-695-6409.

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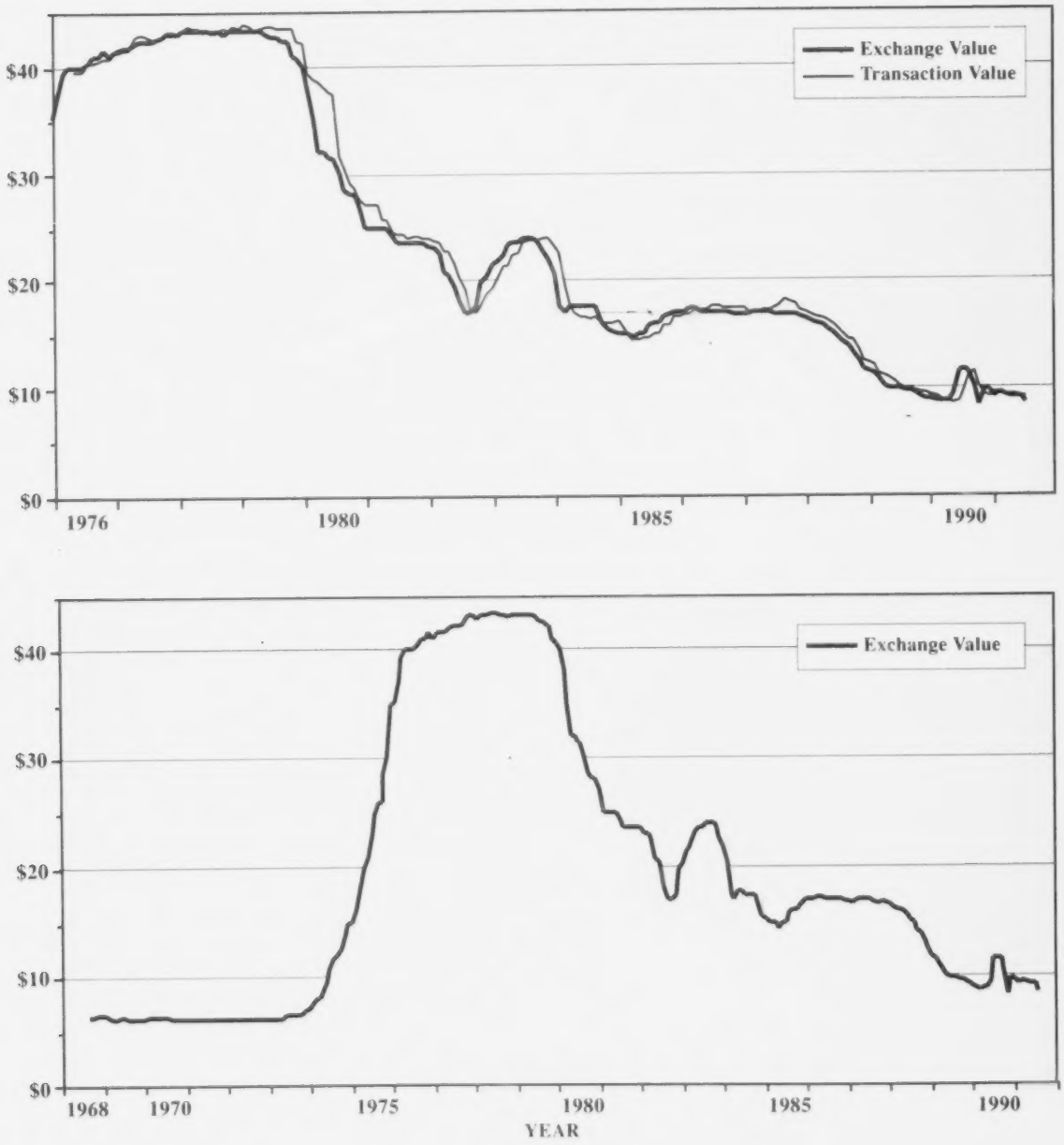
HISTORICAL MARKET DATA

NUEXCO HISTORICAL EXCHANGE VALUE AND TRANSACTION VALUE

(in US dollars per pound U_3O_8)



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HISTORICAL MARKET VALUES

Exchange Values

Year	Determined as of the last day of the month indicated ($US/lb U_3O_8)											
	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1968	—	—	—	—	—	—	—	6.35	6.35	6.40	6.45	6.50
1969	—	6.35	6.10	6.10	6.25	6.25	6.20	6.20	6.15	6.15	6.15	6.20
1970	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.20	6.15	6.15	6.15	6.15
1971	6.20	6.20	6.20	6.20	6.15	6.05	6.00	5.95	5.95	5.95	5.95	5.95
1972	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95
1973	5.95	6.00	6.10	6.20	6.45	6.50	6.50	6.50	6.50	6.50	6.75	7.00
1974	7.70	7.90	8.00	9.00	9.50	10.50	11.50	12.00	12.50	14.00	14.75	15.00
1975	16.00	16.00	18.00	20.00	21.00	23.00	24.70	26.00	26.00	28.50	30.00	35.00
1976	35.20	37.00	39.25	40.00	40.00	40.00	40.00	40.40	41.00	41.00	41.50	41.00
1977	41.35	41.50	41.60	41.60	42.00	42.25	42.25	42.25	42.40	42.75	43.20	43.20
1978	42.90	43.25	43.25	43.25	43.40	43.40	43.40	43.10	43.25	43.00	43.25	43.25
1979	43.25	43.25	43.25	43.25	43.25	43.00	42.70	42.70	42.20	42.20	41.00	40.75
1980	40.00	38.00	35.00	32.00	32.00	31.50	31.50	30.00	28.50	28.00	28.00	27.00
1981	25.00	25.00	25.00	25.00	25.00	24.25	23.50	23.50	23.50	23.50	23.50	23.50
1982	23.00	23.00	22.50	20.75	20.50	19.25	18.25	17.00	17.00	17.50	19.75	20.25
1983	21.50	21.75	22.25	23.25	23.50	23.50	24.00	24.00	24.00	23.50	22.50	22.00
1984	20.50	17.50	17.00	17.75	17.75	17.50	17.50	17.50	17.50	16.00	15.50	15.25
1985	15.00	15.00	15.00	14.25	15.00	15.00	15.75	16.00	16.00	16.50	16.75	17.00
1986	17.00	17.00	17.25	17.25	17.00	17.00	17.00	17.00	17.00	17.00	16.75	16.75
1987	16.65	16.75	17.00	17.00	17.00	16.90	16.75	16.65	16.65	16.75	16.65	16.55
1988	16.30	16.15	15.90	15.75	15.40	15.10	14.75	14.15	13.75	13.15	12.50	11.75
1989	11.60	11.20	10.70	10.10	9.85	9.80	9.80	9.70	9.60	9.40	9.20	9.00
1990	8.85	8.70	8.80	8.80	9.25	11.60	11.70	11.45	10.10	8.35	9.80	9.70
1991	9.10	9.50	9.30	9.10	9.20	9.05	**8.55**					

US Premium (Relative to the Exchange Value)

Year	Determined as of the last day of the month indicated ($US/lb U_3O_8)											
	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1986	—	—	—	—	—	—	—	—	—	—	0.65	0.75
1987	0.85	1.00	1.50	1.50	0.90	0.60	2.50	2.35	2.10	1.65	0.85	0.65
1988	0.70	0.50	0.15	0.25	0.60	0.00	0.00	0.00	0.00	0.00	**Discontinued**	

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HISTORICAL MARKET DATA

UF_6 Values

Determined as of the last day of the month indicated ($US/kg U as UF_6)

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1985	—	—	—	40.50	42.50	42.50	44.00	44.50	44.50	46.00	46.00	47.00
1986	47.00	48.00	48.00	48.50	48.25	48.25	48.25	48.00	48.00	48.00	48.00	47.75
1987	47.75	48.00	48.00	48.00	47.75	47.75	47.50	47.00	46.75	47.00	47.00	47.00
1988	46.50	46.00	45.50	45.25	44.75	44.00	42.75	41.00	40.75	39.00	37.50	35.50
1989	34.75	34.00	33.00	30.50	30.25	30.25	30.00	29.75	29.75	28.25	27.75	26.50
1990	25.90	25.25	24.40	24.40	25.50	32.00	32.50	32.25	29.50	24.75	28.75	28.75
1991	27.50	27.75	27.50	27.25	27.60	27.25	**25.75**					

US Premium (Relative to the UF_6 Value)

Determined as of the last day of the month indicated ($US/kg U as UF_6)

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1986	—	—	—	—	—	—	—	—	—	—	2.50	2.50
1987	2.50	2.50	3.50	3.00	2.25	1.75	6.50	6.00	4.25	3.10	2.25	2.00
1988	1.25	1.25	0.50	0.50	1.00	0.00	0.00	0.00	0.00	0.00	**Discontinued**	

Conversion Values

Determined as of the last day of the month indicated ($US/lb U as UF_6)

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1981	1.20	1.20	1.20	1.40	1.15	1.15	1.15	1.10	1.10	1.10	1.20	1.20
1982	1.20	1.20	1.20	1.20	1.00	1.00	1.00	0.90	1.10	1.60	1.45	1.45
1983	1.20	1.40	1.40	1.20	1.20	1.20	1.10	1.10	1.00	0.60	0.60	0.60
1984	0.60	0.30	0.80	0.80	0.80	0.00	0.00	0.80	1.00	1.00	0.80	0.80
1985	1.00	1.00	1.00	1.50	1.50	1.60	1.60	1.60	1.60	1.60	1.60	1.60
1986	1.60	1.80	1.90	1.80	1.80	1.80	1.80	1.90	1.90	1.90	1.80	1.80
1987	1.80	1.80	1.80	1.80	1.80	1.80	1.90	1.90	1.90	1.90	1.90	1.90
1988	1.90	1.80	1.80	1.80	1.80	1.80	1.85	1.95	1.95	1.95	1.95	1.95
1989	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.90	1.90	1.80	1.75	1.65
1990	1.50	1.50	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45
1991	1.45	1.45	1.45	1.45	1.50	1.50	**1.50**					

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Transaction Values

Year	Determined as of the last day of the month indicated ($US/lb U_3O_8)											
	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1976	—	—	—	—	39.60	39.70	39.70	40.40	40.30	40.60	40.70	40.70
1977	41.30	41.30	41.40	41.50	42.80	42.90	43.00	42.60	42.50	42.80	42.90	42.90
1978	43.10	43.30	43.70	43.60	43.60	43.20	43.30	43.40	43.40	43.60	43.40	43.70
1979	43.60	43.80	43.70	43.40	43.60	43.70	43.70	43.60	43.60	43.60	43.50	42.30
1980	42.00	39.30	38.60	38.40	37.90	37.60	37.30	31.60	30.60	29.00	28.70	27.70
1981	27.20	27.20	27.00	25.70	25.70	24.50	24.40	24.30	23.90	24.10	24.10	24.00
1982	24.00	23.70	23.40	22.60	22.70	21.50	20.30	19.10	17.30	17.00	17.55	18.80
1983	19.35	20.00	21.35	21.40	22.35	22.45	23.50	23.60	23.65	23.65	23.85	23.85
1984	23.05	22.50	19.25	17.90	17.00	16.50	16.60	16.40	16.55	16.05	15.90	15.90
1985	16.20	15.70	15.05	14.90	14.45	14.60	14.75	15.10	15.10	15.75	15.80	16.55
1986	16.55	16.70	16.70	17.10	17.15	17.20	17.50	17.45	17.35	17.25	17.30	17.35
1987	17.35	16.90	16.95	17.00	17.20	17.10	17.30	17.55	18.20	18.05	17.80	17.20
1988	16.85	16.65	16.55	16.45	16.10	15.80	15.45	15.00	14.50	14.40	13.30	12.50
1989	12.25	12.00	11.25	11.00	10.75	10.45	9.95	9.80	9.80	9.65	9.55	9.40
1990	9.25	9.05	8.75	8.65	8.55	8.80	9.75	10.80	11.40	10.10	9.30	9.15
1991	9.40	9.45	9.35	9.30	9.30	9.20	**9.15**					

SWU Values

Year	Determined as of the last day of the month indicated ($US per SWU)											
	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1986	80	80	80	80	75	78	78	78	78	78	80	80
1987	80	80	77	77	75	73	75	75	73	69	73	73
1988	73	73	70	68	68	68	68	65	65	65	65	65
1989	65	67	67	67	66	66	66	65	63	59	57	54
1990	54	50	50	50	50	50	50	50	50	51	51	51
1991	51	50	52	52	54	59	**66**					

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HISTORICAL MARKET DATA

Loan Rates

Year	Determined as of the last day of the month indicated (Percent per Annum)											
	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1968	—	—	—	—	—	—	—	4.00	4.00	4.00	4.00	4.00
1969	4.00	4.00	5.00	5.00	5.00	5.00	5.00	5.00	6.00	6.00	6.00	6.00
1970	6.00	6.20	6.40	6.50	6.50	6.50	6.50	5.00	6.50	6.00	5.50	5.50
1971	5.00	4.75	4.75	4.75	5.00	5.25	5.25	5.25	5.25	5.25	4.50	4.50
1972	4.00	4.00	4.00	4.50	4.50	4.50	5.00	5.00	5.00	5.00	5.00	5.00
1973	5.50	5.50	5.75	5.75	6.00	6.25	7.00	7.00	7.00	7.00	7.50	8.00
1974	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
1975	8.00	7.00	7.00	7.00	7.00	6.50	6.50	6.50	6.50	6.50	6.50	6.50
1976	6.50	6.50	6.50	6.50	*	*	*	*	*	*	*	*
1977	*	*	*	*	6.50	6.50	6.50	6.75	7.25	7.25	7.25	7.25
1978	7.25	7.00	7.00	7.00	7.00	7.50	7.75	7.75	7.75	7.00	7.00	7.00
1979	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
1980	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
1981	7.00	7.00	7.00	7.00	7.00	5.50	5.50	5.50	5.50	6.00	6.00	6.00
1982	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
1983	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
1984	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
1985	6.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
1986	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
1987	3.00	3.00	3.00	3.00	3.00	3.00	3.00	4.00	4.00	4.00	3.50	3.50
1988	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
1989	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
1990	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
1991	3.50	3.50	3.50	3.50	3.50	3.50	**3.50**					

* Float with Prime Rate

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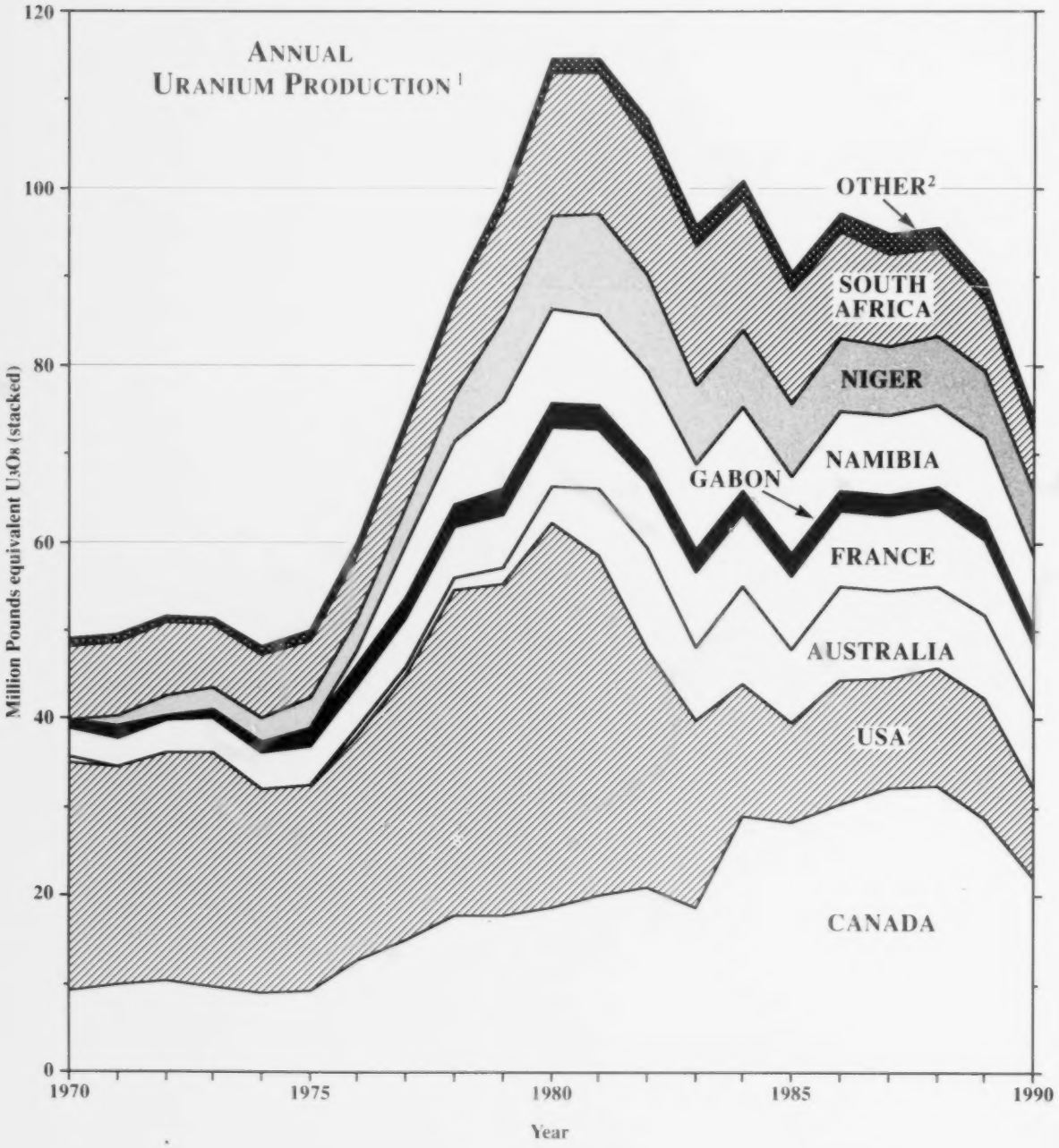

[1] Estimated world uranium production in 1990 totalled 85.2 million pounds equivalent U_3O_8 —
(Australia: 9.1 – Canada: 22.0 – France: 7.4 – Gabon: 1.8 – Namibia: 8.0 – Niger: 7.4 – South Africa: 6.4 – USA: 10.2 – Other[2]: 2.2)

[2] Other includes: Argentina, Belgium, Brazil, India, Pakistan, Portugal, Spain, western Germany, and Yugoslavia

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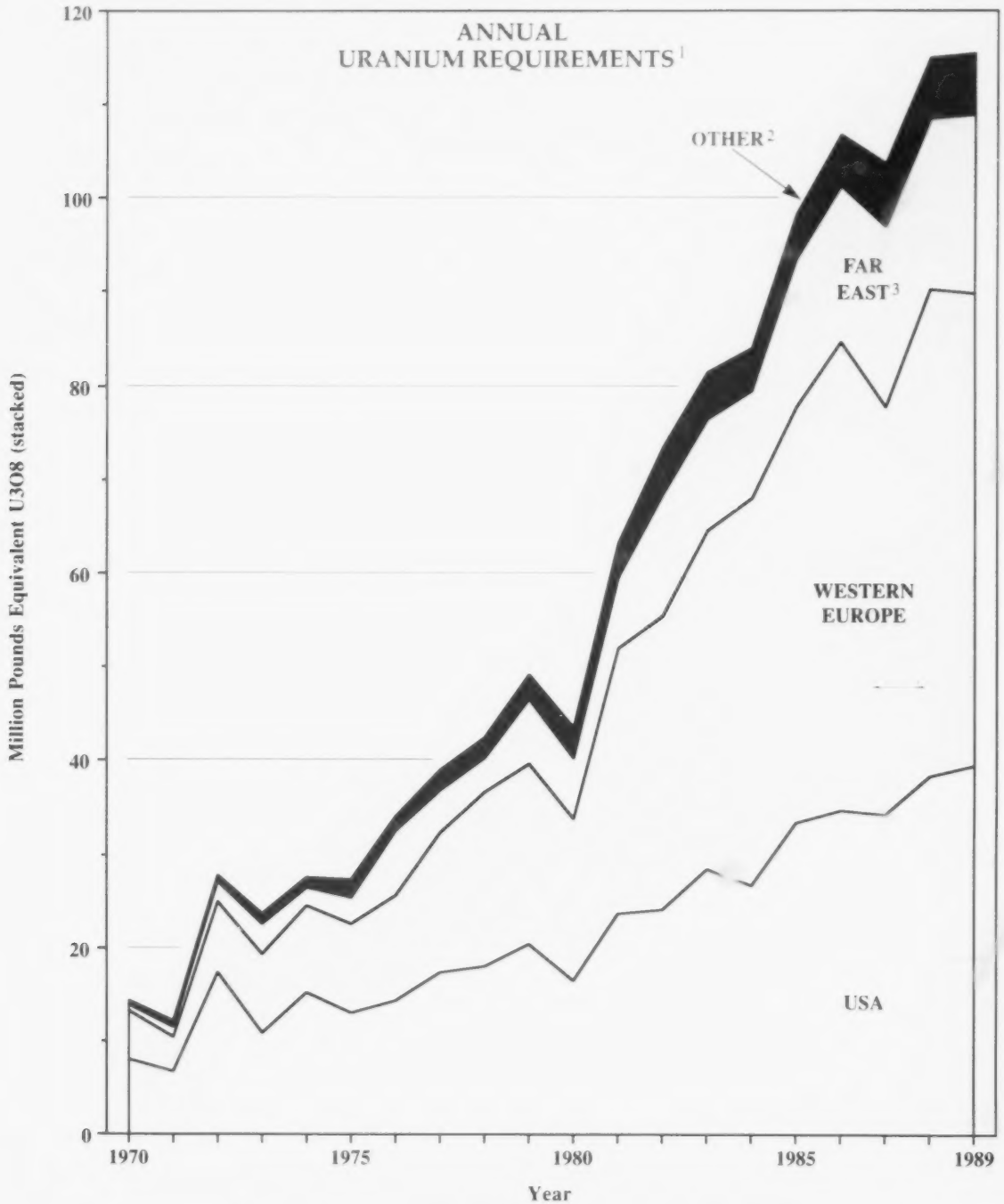
HISTORICAL MARKET DATA



[1] Calculated by NUEXCO based on actual completion dates and operating performance, and NUEXCO's estimate of enriching tails assays.

[2] **Other** include: Argentina, Brazil, Canada, India, Mexico, Pakistan and South Africa.

[3] Does not include Peoples Republic of China.

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Australia

Year	Period [1]	Consumer Price Index [2] (1980/1981 = 100)	Price Index of Materials Used in Manufacturing Industry — All Groups [3] (1984/1985 = 100)	Average Weekly Ordinary Time Earnings — Adult Males — Australia [4] (Australian dollars)	Award Rates of Pay Indexes Australia - Adult Males In Mining Wage Earners, Weekly Rates [5] (June 1985=100)
1980	Avg.	95.8	83.1	—	140.8 [6]
1981	Avg.	105.0	85.9	—	154.1 [6]
1982	Avg.	116.7	89.0	—	174.9 [6]
1983	Avg.	128.5	96.9	—	181.9 [6]
1984	Avg.	133.6	98.0	—	194.4 [6]
1985	Avg.	142.6	107.3	—	103.7
1986	Avg.	155.5	101.5	—	106.1
1987	Avg.	168.7	108.9	465.88	112.3
1988	Avg.	180.9	111.8	496.90	115.2
1989	Avg.	194.6	117.0	534.65	126.0
1990	Avg.	208.7	123.4	571.43	129.6
Jan	1990	—	119.2	—	128.3
Feb	1990	—	120.8	555.80	128.3
Mar	1990	204.1	121.5	—	128.7
Apr	1990	—	119.9	—	129.0
May	1990	—	118.9	566.60	129.2
June	1990	207.4	116.6	—	129.8
July	1990	—	116.4	—	129.9
Aug	1990	—	122.4	574.10	130.0 R
Sept	1990	208.9	128.2	—	130.2 R
Oct	1990	—	134.1	—	130.4
Nov	1990	—	133.7	589.20	130.4
Dec	1990	214.5	128.8	—	130.6
Jan	1991	—	125.6	—	130.6
Feb	1991	—	121.5	—	130.5
Mar	1991	214.1	119.1	—	130.6
Apr	1991	—	117.6	—	130.8 R
May	1991	—	117.8	—	130.8

P = Preliminary **R** = Revised since last month

[1] Monthly data for the period 1967 to 1986 appears in Report 233 (January 1988).
[2] Weighted average of six State capital cities (1975 to 1980), and eight capital cities from 1981 (Base: Financial year July 1980 to June 1981 = 100.0). Figures shown at end of quarter represent quarterly average.
[3] Australian Bureau of Statistics, Canberra: "Price Index of Materials Used in Manufacturing Industry" (Catalogue No. 6411.0).
[4] Australian Bureau of Statistics, Canberra: "Award Rates of Pay Indexes, Australia" (Catalogue No. 6312.0). Figures for the latest fourteen months shown are subject to revision.
[5] Australian Bureau of Statistics, Canberra: "Average Weekly Earnings, States & Australia" (Catalogue No. 6302.0).
[6] Base: June 1976 = 100.

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GOVERNMENT STATISTICS

Canada

		Industrial Products Price Index: All Commodities [1] (1986 = 100) [2]	Consumer Price Index: All Items (1986 = 100) [3]	Wage-earner Data: Average Hourly Earnings (C$) [4] Uranium Mines (SIC 057)	Metal Mines (SIC 051-059)	Mines, Quarries and Oil Wells (SIC 051-099)	Metal Rolling, Casting and Extruding (SIC 298)	Chemicals and Chemical Products Industries (SIC 372-379)
1980	Avg.	75.7	67.1	–.–	–.–	–.–	–.–	–.–
1981	Avg.	83.4	75.5	–.–	–.–	–.–	–.–	–.–
1982	Avg.	89.0	83.7	–.–	–.–	–.–	–.–	–.–
1983	Avg.	92.1	88.5	17.22	–.–	14.18	10.67	11.10
1984	Avg.	96.3	92.3	17.89	–.–	14.97	11.11	11.68
1985	Avg.	99.0	96.0	18.53	16.48	15.56	11.85	12.12
1986	Avg.	100.0	100.0	19.38	16.70	15.76	12.28	12.58
1987	Avg.	102.4	104.4	20.12	17.15	16.11	12.58	13.20
1988	Avg.	106.9	108.6	20.91	18.51	16.95	13.17	13.77
1989	Avg.	109.4	114.0	21.97	20.02	18.41	13.71	14.16
1990	Avg.	109.7 R	119.4	22.90	20.93	19.12	14.62	15.28
Jan	1990	108.7	116.9	21.88	20.39	19.03	13.99	14.78
Feb	1990	109.5	117.6	22.51	20.63	19.14	14.49	15.03
Mar	1990	109.3	118.0	22.52	20.75	19.17	14.99	15.07
Apr	1990	109.1	118.1	23.17	21.20	19.46	14.83	14.93
May	1990	109.6	118.7	23.28	20.55	19.01	14.71	15.06
June	1990	109.4	119.2	21.85	20.63	18.96	14.69	15.05
July	1990	109.1	119.8	20.92	20.18	18.66	14.34	15.20
Aug	1990	109.3	119.8	23.88	20.51	18.59	14.50	15.33
Sept	1990	110.2	120.2	24.41	21.19	18.94	14.48	15.63
Oct	1990	110.6	121.2	23.11	21.39	19.12	14.78	15.59
Nov	1990	110.9	121.9	23.38	21.83	19.48	14.93	15.73
Dec	1990	111.0 R	121.8	23.90	21.89	19.88	14.7	16.01
Jan	1991	111.1	125.0	23.79	21.79	19.78	14.66	15.89
Feb	1991	110.5	125.0	25.23	22.45	20.13	14.63	16.19
Mar	1991	109.8	125.5	24.19	22.22	20.27	15.21	16.47
Apr	1991	109.1 R	125.5	24.77 R	22.50 R	20.31 R	14.63 R	16.64 R
May	1991	108.8 R	126.1	24.43 P	22.20 P	20.30 P	14.66 P	16.63 P
June	1991	108.6	126.7	–.–	–.–	–.–	–.–	–.–

P = Preliminary R = Revised since last month

[1] Statistics Canada, Prices Division, Ottawa: "Industry Price Indexes" (Catalogue 62-011). Indexes for the most recent six months shown are subject to revision. This category was formerly known as "Manufacturing." Monthly data for the period 1967 to 1986 is found in Report 233.

[2] New Base Year of 1986 as of Report 266. Previous Base Year was 1981. All figures in column recalculated by 0.791 multiplier.

[3] New Base Year of 1986 as of Report 264. Previous Base Year was 1981. All figures in column recalculated by 0.755 multiplier.

[4] Statistics Canada, Labour Division, Employment and Payrolls Section, Ottawa: "Employment, Earnings and Hours." Monthly data for the period 1983 to 1986 is found in Report 233.

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South Africa

		Average Declared Working Costs per Metric Ton of Gold Ore Milled [1] (Rand)	Tonnage-Weighted Index of Average Working Costs per Metric Ton of Gold Ore Milled [2] (March 1982 = 100)	Consumer Price Index [3] (1985 = 100)	Production Price Index All Groups [4] (1985 = 100)	Total Employment in Mining and Quarrying [5]	Total Salaries and Wages in Mining and Quarrying [5] (1,000 Rand)
							Annual Total [6]
1980	Avg.	35.53	—	51.9	55.2	709,042	2,237,689
1981	Avg.	41.89	—	59.8	62.7	722,918	2,756,928
1982	Avg.	47.25	104.2	68.6	71.4	702,041	3,181,584
1983	Avg.	51.88	115.0	77.1	79.0	700,901	3,563,282
1984	Avg.	58.95	[illegible]	86.0	85.6	711,511	4,134,390
1985	Avg.	68.76	151.6	100.0	100.0	724,587	4,778,612
1986	Avg.	80.22	177.9	118.6	119.5	756,637	5,767,950
1987	Avg.	95.01	223.1	137.7	136.2	751,864	6,911,395
1988	Avg.	106.69	241.1	155.4	154.1	705,355	7,774,054
1989	Avg.	116.65	273.0	178.2	177.5	700,360	8,833,934
1990	Avg.	129.37	305.3	203.8	199.4	677,742	10,193,209
							Monthly Total
Jan	1990	—	—	192.0	188.8	688,837	801,616
Feb	1990	—	—	193.3	190.3	674,026	767,274
Mar	1990	126.74	296.3	196.4	190.9	704,660	780,614
Apr	1990	—	—	198.3	194.1	696,107	810,474
May	1990	—	—	200.4	196.3	613,527	719,191
June	1990	128.25	299.87	201.8	197.0	676,621	841,165
July	1990	—	—	203.2	197.2	697,242	913,177
Aug	1990	—	—	206.5	199.8	686,385	902,392
Sept	1990	129.46	312.55	209.7	203.2	689,317	922,454
Oct	1990	—	—	211.1	206.1	676,833	882,603
Nov	1990	—	—	215.6	214.9	669,198	909,418
Dec	1990	133.02	312.37	217.1	214.7	660,151	942,831
Jan	1991	—	—	219.5	218.0	648,944	935,839
Feb	1991	—	—	222.2	219.3	650,948	893,373
Mar	1991	137.66	323.82	224.1	218.5	640,039	905,490
Apr	1991	—	—	227.3	220.9	—	—
May	1991	—	—	230.8	221.9	—	—
June	1991	—	—	232.4	—	—	—

P = Preliminary R = Revised since last month

[1] Chamber of Mines of South Africa, Johannesburg: "Analysis of Working Results," published quarterly. Historical Data by month appears in Report 236.

[2] Page 16 of Report 178 contains description and calculation of index, and page 24 of Report 178 lists figures for 1982.

[3] Central Statistical Service, Pretoria: All income groups-weighted average. Historical Data by month appears in Report 236.

[4] Central Statistical Service, Pretoria: All commodities for consumption in South Africa.

[5] Central Statistical Service, Pretoria: Historical Data by month appears in Report 236.

[6] Annual total is shown, rather than monthly average, for indicated year.

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GOVERNMENT STATISTICS

United States

		Producer Price Index [1]		Consumer Price Index [2]	GNP Implicit Price Deflator [3]	Gross Average Hourly Earnings of Production or Non-supervisory Workers (US$) [4]			
		Industrial Commodities (1982 = 100)	All Commodities (1982 = 100)	(1982-1984 = 100)	(1982 = 100)	Metal Mining (SIC 10)	Primary Non-ferrous Metals (SIC 333)	Chemicals and Allied Products (SIC 28)	Electric and Electronic Equipment (SIC 36)
1980	Avg.	88.0	89.8	82.4	85.7	10.26	10.63	8.30	6.94
1981	Avg.	97.4	98.0	90.9	94.0	11.55	11.98	9.12	7.62
1982	Avg.	100.0	100.0	96.5	100.0	12.31	12.93	9.96	8.21
1983	Avg.	101.1	101.3	99.6	103.9	12.58	13.43	10.58	8.67
1984	Avg.	103.3	103.7	103.9	107.7	13.05	13.43	11.07	9.04
1985	Avg.	103.7	103.2	107.6	110.9	13.38	13.74	11.56	9.46
1986	Avg.	100.0	100.2	109.6	113.9	12.46	13.48	11.98	9.65
1987	Avg.	102.6	102.8	113.6	117.7	12.52	12.98	12.37	9.88
1988	Avg.	106.3	106.9	118.3	121.3	13.24	13.26	12.71	9.79
1989	Avg.	111.6	112.2	124.0	126.3	13.59	13.72	13.09	10.05
1990	Avg.	115.8	116.3	130.7	131.5	14.10	14.36	13.54	10.37
Jan	1990	114.1	114.9	127.4	—	13.69	13.95	13.34	10.13
Feb	1990	113.6	114.4	128.0	—	13.70	13.99	13.27	10.16
Mar	1990	113.2	114.2	128.7	129.5	13.80	14.04	13.34	10.17
Apr	1990	113.2	114.1	128.9	—	13.92	14.30	13.53	10.17
May	1990	113.5	114.6	129.2	—	13.96	14.16	13.46	10.22
June	1990	113.2	114.3	129.9	131.0	14.00	14.31	13.51	10.27
July	1990	113.4	114.5	130.4	—	14.29	14.49	13.58	10.34
Aug	1990	115.9	116.5	131.6	—	14.27	14.60	13.57	10.33
Sept	1990	118.4	118.4	132.7	132.2	14.41	14.48	13.62	10.42
Oct	1990	121.4	120.8	133.5	—	14.43	14.58	13.72	10.47
Nov	1990	120.7	120.1	133.8	—	14.34	14.73	13.73	10.53
Dec	1990	119.0	118.7	133.8	133.1	14.39	14.69	13.75	10.57
Jan	1991	119.3	119.0	134.6	—	14.73	14.63	13.85	10.60
Feb	1991	117.2	117.2	134.8	—	14.80	14.55	13.81	10.59
Mar	1991	115.6	116.1	135.0	134.8	14.93	14.55	13.85	10.55
Apr	1991	115.5	116.0	135.2	—	14.85R	14.56R	13.96R	10.63
May	1991	116.1	116.5	135.6	—	14.79P	14.54P	14.02R	10.65R
June	1991	116.0	116.3	136.0	136.1	—.—	—.—	14.10P	10.73P

P = Preliminary **R** = Revised since last month

[1] US Bureau of Labor Statistics, Washington, DC: "Producer Prices and Price Indexes," (formerly "Wholesale Prices and Price Indexes"). Producer Price Indexes are revised four months after they are first released to reflect the availability of late reports and corrections by respondents. Historical data is presented in Report 233.

[2] US Bureau of Labor Statistics, Washington, DC: Consumer Price Index for All Urban Consumers, US City Average, All Items. Historical data is presented in Report 233.

[3] US Department of Commerce, Washington, DC: Bureau of Economic Analysis, National Income and Wealth Division: "Survey of Current Business." The GNP Implicit Price Deflator is published quarterly, and seasonally adjusted. Historical data is presented in Report 233.

[4] US Bureau of Labor Statistics, Washington, DC: "Employment and Earnings." All data based on 1972 revision of SIC Manual. Historical data is presented in Report 233.

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Volume and Price of Uranium Deliveries To The European Community [1]

— Compiled from data published by the Euratom Supply Agency —

Year	Volume of Deliveries to the EC [2] (MTU)	Percentage of Deliveries Made Under Spot Contracts	Medium or Long-Term Contracts [3] Average Price		Spot Contracts [3] Average Price	
			in ECU per pound U_3O_8	in US Dollars per pound U_3O_8	in ECU per pound U_3O_8	in US Dollars per pound U_3O_8
1977	n/a	n/a	n/a	n/a	n/a	$41.00
1978	n/a	n/a	n/a	n/a	n/a	$43.00
1979	10,000	n/a	n/a	n/a	n/a	$44.50
1980	8,600	n/a	n/a	$36.00	n/a	$35.00
1981	13,000	less than 10	n/a	$33.25	n/a	$28.00
1982	12,500	less than 10	ECU 32.25	$32.00	ECU 24.25	$24.00
1983	13,500	less than 10	ECU 34.75	$31.00	ECU 26.00	$23.25
1984	11,000	less than 10	ECU 37.75	$29.75	ECU 24.50	$19.25
1985	11,000	11.5	ECU 38.00	$29.00	ECU 19.50	$15.00
1986	12,000	9.5	ECU 31.50	$31.00	ECU 18.00	$17.75
1987	14,000	17.0	ECU 28.25	$32.50	ECU 15.00	$17.25
1988	12,500	4.5	ECU 26.92	$31.82	ECU 13.65	$16.13
1989	13,500	11.5	ECU 26.63	$29.35	ECU 11.04	$12.19
1990	12,800	16.7	ECU 23.08	$29.39	ECU 7.60	$ 9.68

P = Preliminary **R** = Revised since last month

[1] The twelve European Community member nations are Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, and the United Kingdom; prior to January 1986, Spain and Portugal were not members of the EEC.

[2] The only deliveries taken into account are those made to final users, namely the electric utilities or their procurement organizations; deliveries to middlemen or fuel cycle companies are not included. The sales between utilities in the Community are also excluded. The quantities covered are those which were entered into accounting records during the year stated.

[3] For deliveries made under medium or long-term contracts (i.e., for which the time between the date of signature and the date of the last delivery exceeds one year) the prices were expressed in seven different currencies. In order to calculate an average price, these prices have been converted into European Currency Units (ECU) and US dollars. The average prices were weighted by quantity and converted on the basis of the average annual exchange rate of the different currencies against the ECU and US dollar. Exchange rates are published by European Communities Statistical Office and the International Monetary Fund.

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GOVERNMENT STATISTICS

US Uranium Marketing Activities Statistics

— Compiled from data published by the US Energy Information Administration [1] —

Year	Total Production (million pounds U_3O_8)	Deliveries to Domestic Utilities From US Suppliers [2] (million pounds U_3O_8)	Average Price of Delivered Uranium [2] ($/lb. U_3O_8)	Quantity of Uranium Imported [3] (million pounds U_3O_8)	Average Price of Imported Uranium ($/lb. U_3O_8)	Quantity of Uranium Exported (million pounds U_3O_8)
1976	25.5	27.6	$16.10	3.6	n/a	1.2
1977	29.9	27.8	$19.75	5.6	n/a	4.0
1978	37.0	31.6	$21.60	5.2	n/a	6.8
1979	37.5	33.0	$23.85	3.0	n/a	6.2
1980	43.7	35.0	$28.15	3.6	$43.10	5.8
1981	38.5	32.6	$34.65	6.6	$32.90	4.4
1982	26.9	23.5	$38.37	17.1	$25.19	6.2
1983	21.2	24.2	$38.21	8.2	$26.16	3.3
1984	14.9	22.5	$32.65	12.5	$21.86	2.2
1985	11.3	21.7	$31.43	11.7	$20.08	5.3
1986	13.5	18.9	$30.01	13.5	$20.07	1.6
1987	13.0	20.8	$27.37	15.1	$19.14	1.0
1988	13.1	17.6	$26.15	15.8	$19.03	3.3
1989	13.8	18.4	$19.56	13.1	$16.75	2.1

P = Preliminary **R** = Revised since last month

[1] Sources: 1976-1983: US Department of Energy/Energy Information Administration, *Survey of United States Marketing Activity*.
1984-1989: Energy Information Administration, *Uranium Industry Annual*.

[2] Data for 1976-1981 includes both domestic utilities and agents.

[3] Includes imports by domestic utilities and domestic suppliers.

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